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VOLUME X SEPTEMBER 1917 NUMBER 9

Southern Medical Journal

Journal of The Southern Medical Association

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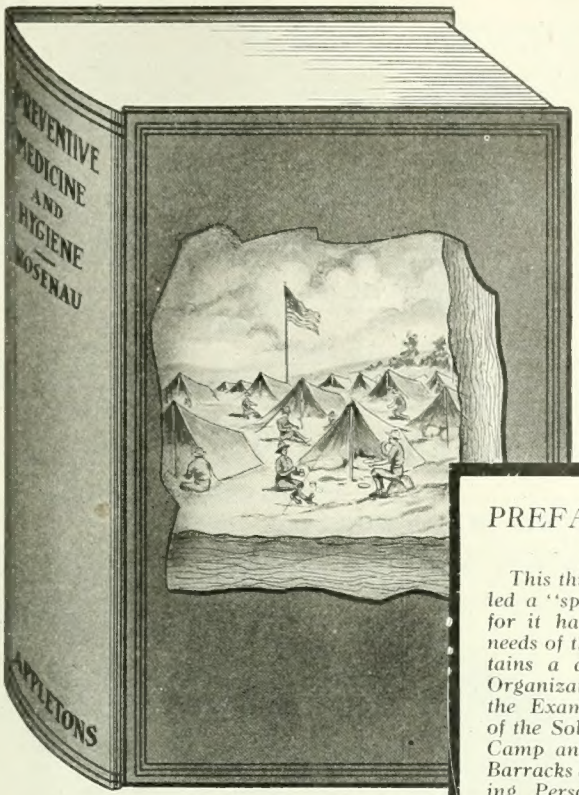

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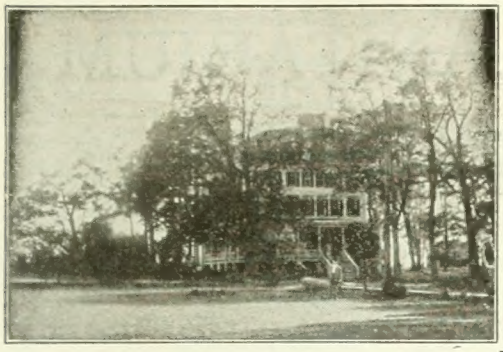

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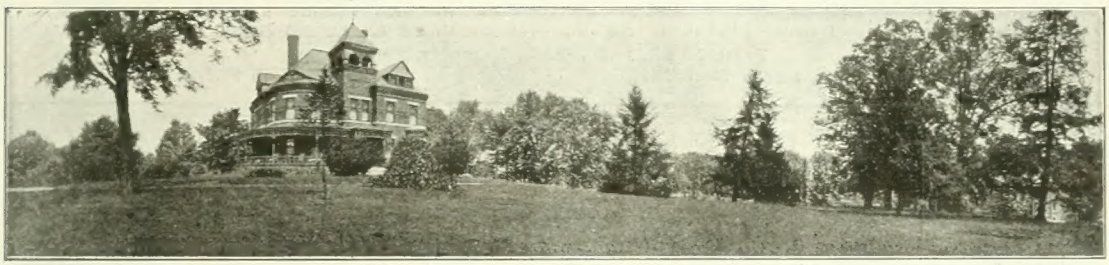

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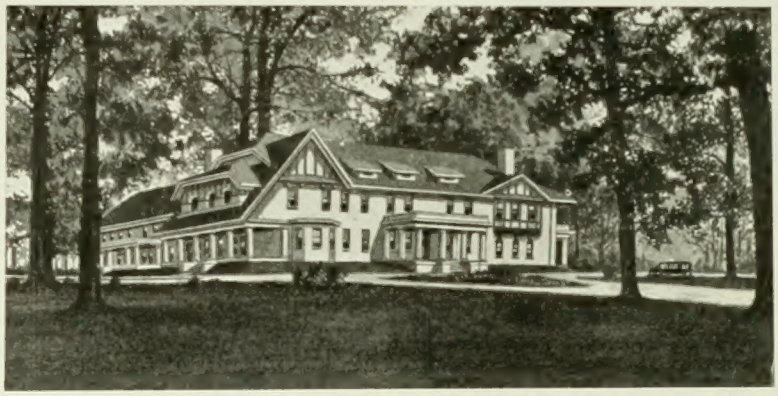

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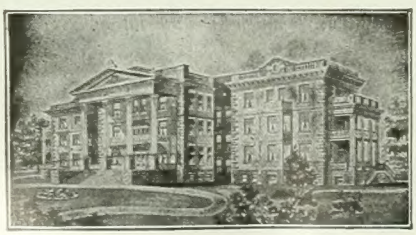

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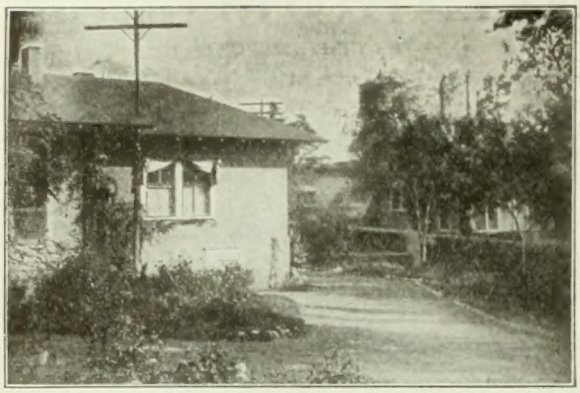

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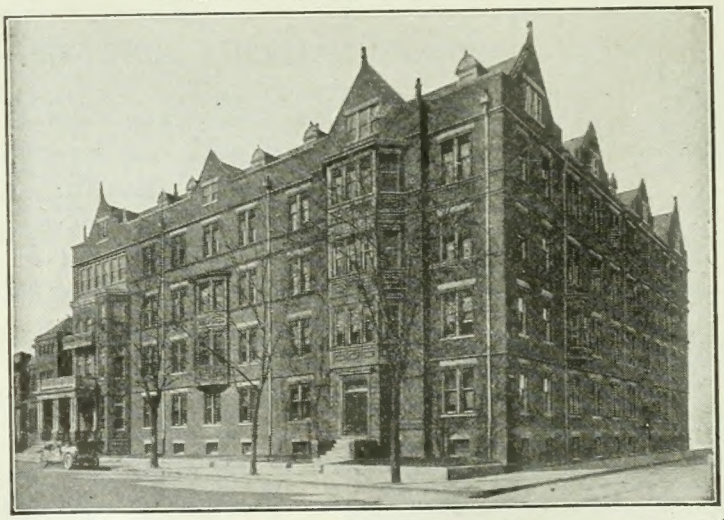

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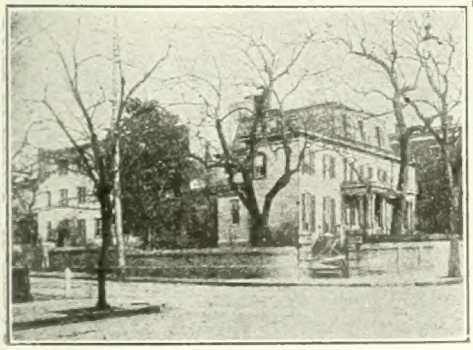

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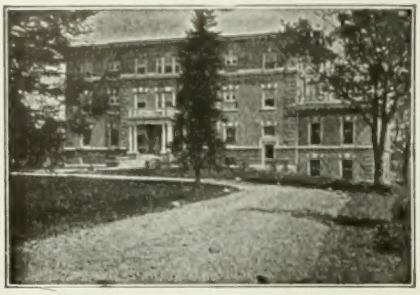

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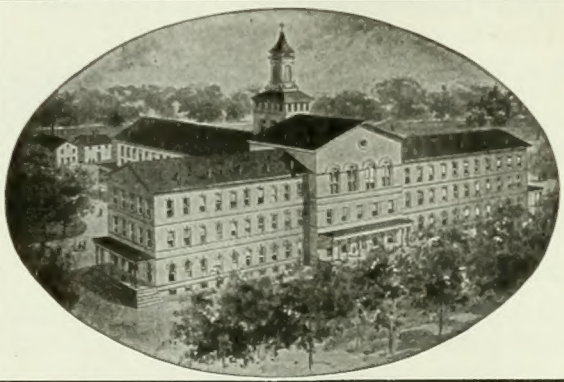

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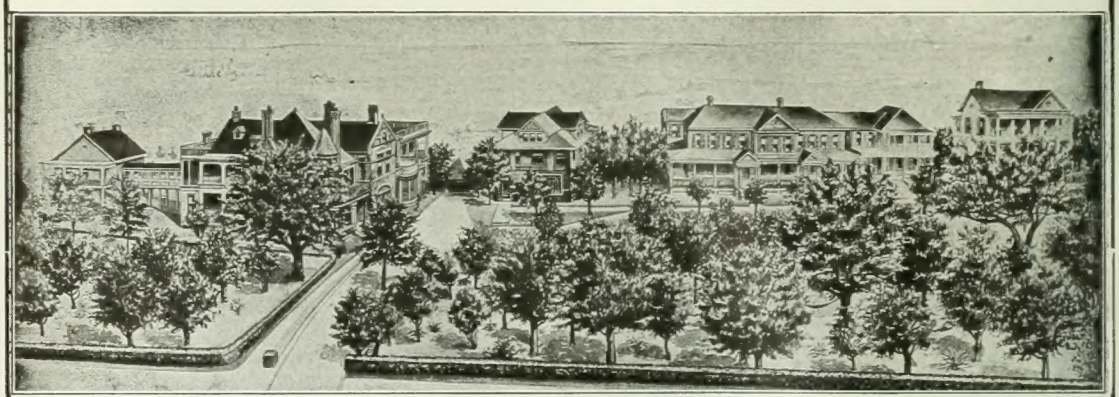

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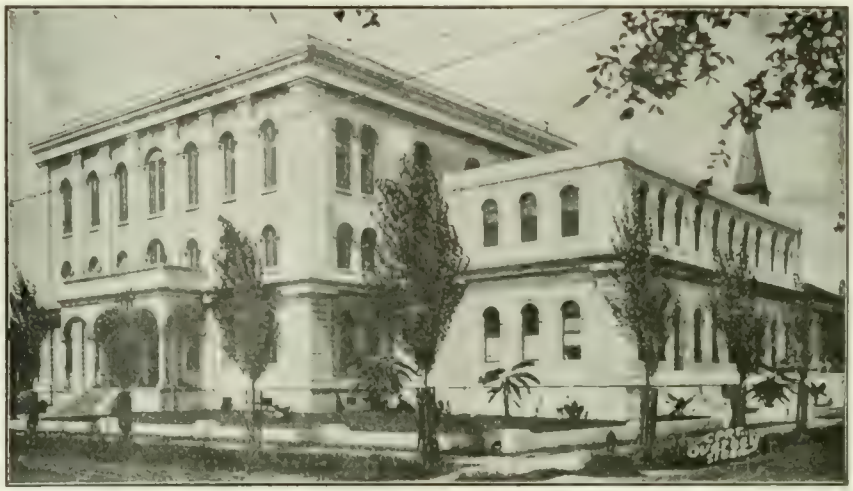

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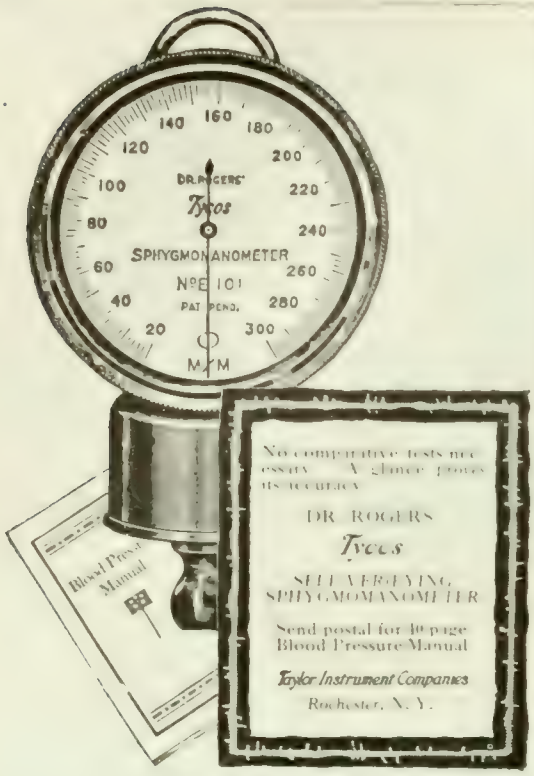

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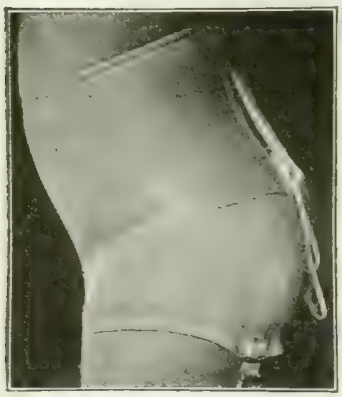

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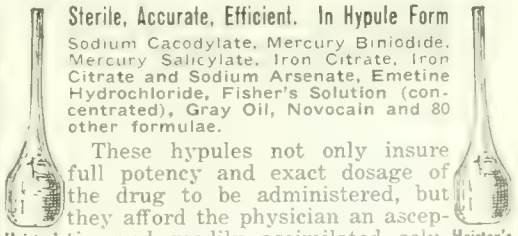

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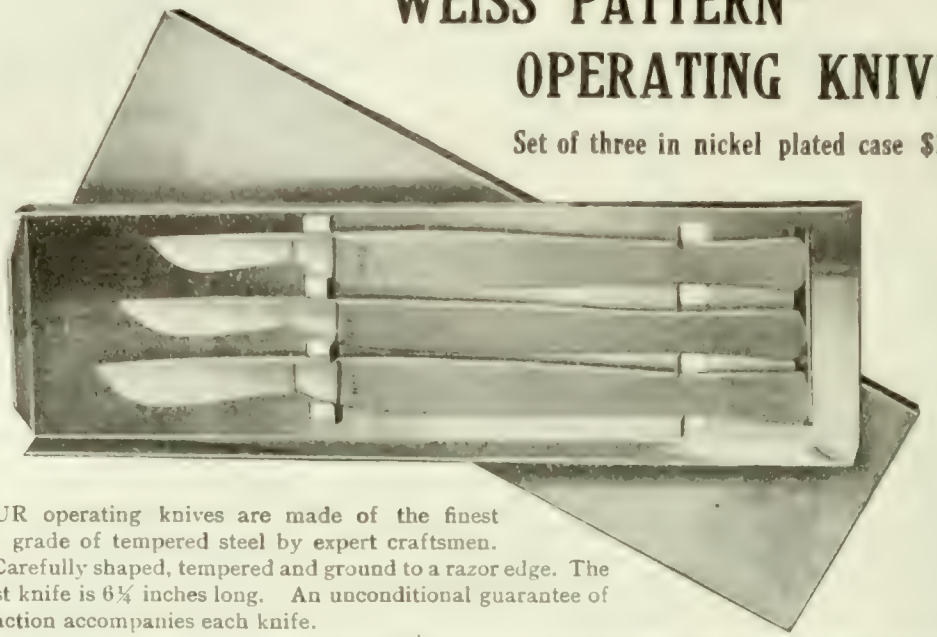

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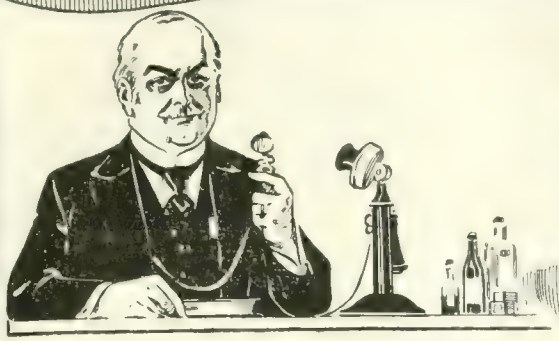

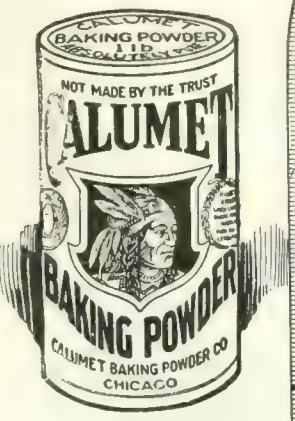

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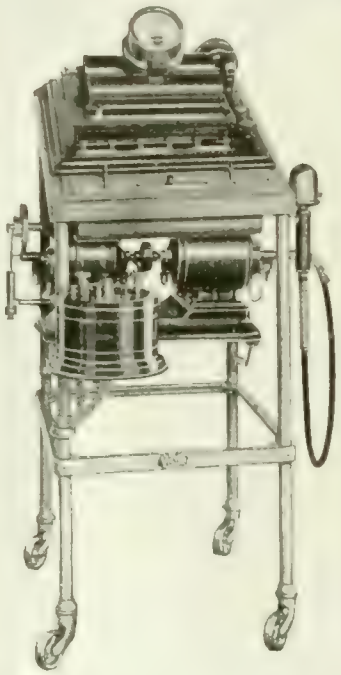

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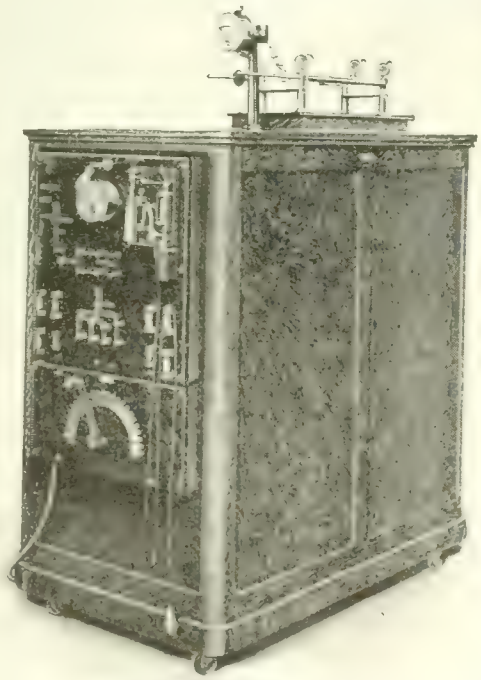

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SOUTHERN MEDICAL JOURNAL
JOURNAL OF THE SOUTHERN MEDICAL ASSOCIATION
PUBLISHED MONTHLY AT BIRMINGHAM, ALABAMA

Volume X SEPTEMBER 1, 1917 Number 9

MEDICINE

(INTERNAL DISEASES, PEDIATRICS, NEUROLOGY, DIAGNOSTIC METHODS, ETC.)

PEDIATRIC CLINIC*

By Philip F. Barbour, M.D.,
Louisville, Ky.

I want to present to you first this baby, about a year old, that is suffering from paralysis of the muscles of deglutition and also those of the neck proper. The baby came to the hospital several weeks ago on account of its difficulty in swallowing, liquids being regurgitated through the nose in a manner characteristic of post-diphtheritic paralysis. The child was unable to hold up its head at all. There was no membrane present. There was no history obtainable of an attack of diphtheria, but children of this class frequently pass through an attack of diphtheria without its being recognized by the family, so we are justified in making the diagnosis from the characteristic symptom syndrome. There was, in addition to the paralytic symptoms, a marked interference with the rhythm of the heart action,—the respiration was irregular and the pulse was quite variable. Examination revealed a decidedly dilated heart. Under rest in bed and proper medication there has been marked improvement in all of these symptoms. The X-ray, however, shows still a decidedly enlarged area of the heart. As you will note, the right border of the heart is convex, thus excluding any possibility of pericardial effusion.

Percussion over the chest brought out the fact that the anterior and posterior mediastinal spaces were wider than normal. It is not very difficult by resistive or auscultatory percussion to make this out. D'Espine's sign is valuable, but it is not feasible in a child of this age. As you will note from the X-ray photograph, the glands are quite in evidence. It is particularly important in such cases to guard against the possibility of infection with tuberculosis. The mother, who is not particularly observant, claims that there is no tuberculosis in the family, but the possibility of house infection must not be minimized, nor can we be positive that there is not even now a latent infection of the bronchial lymphatic glands. A von Pirquet will be of value to us in this case; and whether positive or negative, the mother should be cautioned against any exposure to tuberculosis.

There has been such an improvement in the paralysis and in the action of the heart that it was not necessary to do more than give the child a rest until the relaxed condition of the heart has been relieved. This will take some time yet. While there are no murmurs present, the first sound is not of proper character, and the area of the heart dullness still remains too large and shows continued relaxation of the muscle fibres.

The next case I shall show you belongs to the class of arthritides. There is no field of medicine that is more interesting, or which is making greater progress than our knowledge of joint lesions, for we have bound up with it the focal infections and the theories of immunity and resistance. This boy, three years of age, presents a swollen wrist and swollen dorsa of both feet. He has had a swelling here for nearly two years. The enlargement has continued

*Before the Southern Medical Association at the Atlanta Medical College, Atlanta, Ga., Nov. 15, 1916.

persistently, though there have been exacerbations and remissions. There have been frequent irregularly occurring attacks of fever ranging up to 104°.

The family history is negative as to rheumatism, tuberculosis, and miscarriages on the part of the mother. At birth the child weighed ten pounds; its appetite and nutrition have always been poor, the tendency being toward constipation with occasional attacks of diarrhea. On examination we find the right wrist and the dorsa of both feet are swollen. There is no redness nor marked tenderness. The heart is normal and also the lungs, 'though there seems to have been at one time some dullness at the apex. The spleen is enlarged two finger breadths below the ribs. The liver is not enlarged. The abdomen is tympanitic and the umbilicus protrudes slightly. The urine is normal except for increased indican. The reflexes are normal. The lymphatic glands on the left side of the neck and especially the deep post-cervical glands were enlarged and quite palpable. Other lymphatic glands are not noticeable.

The most natural explanation of this is some toxine which is sufficiently irritating to produce a chronic hyperplasia of the tissues. The micro-organisms must be of a very low type of virulence, otherwise there would have been some breaking down of tissue in this length of time. The blood picture is as follows: hemoglobin, 35%; 3,500,000 red blood cells; 15,000 white blood cells. Differential count: polynuclears, 68%; large lymphs., 12; small lymphs., 12; eosinophiles, 3; transitionals, 5. We have here a marked anemia, leucocytosis and polymorphonuclears far above normal for a child of its age. The leucocytosis with the enlarged spleen point to an infection.

The focus of infection is most difficult to find. It can not be in the teeth, because it antedated the eruption of the teeth. Of course, the most frequent site of infection in a child is in the tonsil area. The father has been subject to repeated attacks of tonsillitis. A careful examination by Dr. Lokey does not reveal any infection either in the tonsil, rhinopharynx nor the Eustachian tube. The middle ear can not be ruled out entirely, because the drum membranes are thickened and somewhat shrunken. The glands on the left side which drain the Eustachian tube or middle ear show evidence of irritation. The ear should be watched for developments.

Other foci of infection such as the bowel, kidney, prostate, etc., will naturally occur to you. The inability of the child to handle any character of food for any length of time, coupled with the irregular action of the bowels, the offensive putrid diarrhea at times, the increased indican in the urine, all point toward a possible gastro-intestinal site. The treatment of the boy has been symptomatic. The suggestion may be made that a culture be taken from the tonsils and an autogenous vaccine made. It may be necessary to use the Eustachian catheter so that the deeper cavities in the tonsils be emptied, for the offending bacteria may not be located superficially at all. The tonsils might be enucleated and the culture made from the deeper surfaces if the arthritic symptoms continue. Blood cultures in such cases are very unreliable and give little help. Various hematinic agents should be prescribed in order that we may have all the assistance possible in the fight against the infection. The respiration is now 48. This, without any lung complication, shows an air hunger which comes from the marked anemia.

The last two cases I show here together are extremes. These micro- and macrocephalic children are each about seven months of age. The micro measures 14½ inches circumference, the bregmatic 7¾ inches, the inioglabella 8½ inches. The case of macro-cephalus is one of hydrocephalus with a circumference of 21 inches.

The micro-cephalic child was the first child born after normal labor. The family and parental history is negative. The head was small and hard at first and has not kept pace with the development of the child. Breast feeding was finally omitted and condensed milk used, under which the child gained flesh. Rather as a matter of experiment thyroid has been administered to this child in small doses up to the present time. The mother believes there has been a marked improvement lately in its intelligence. This may be safely continued as long as the child is under careful observation. Of course, one can not promise any benefit in a case of this kind,

neither should one deny the parents the opportunity to do something for the child.

The case of hydro-cephalus should be studied along lines which have been elaborated by Dandy and Blackfan. The prognosis in such cases has been so unfavorable that we should grasp at anything offering a hope of amelioration. Dandy and Blackfan have established certain facts which are a valuable advance in our knowledge of hydro-cephalus.

In brief, the secretion of the cerebrospinal fluid arises from the lateral ventricles and the choroid phlexus. It finds its way normally through the aqueduct of Sylvius to the fourth ventricle, from which it reaches through the foramen of Magendie, the subarachnoidian space. From this space it is reabsorbed through the blood vessels and lymphatics of the meninges of the brain and spinal cord. Hydro-cephalus may result from an obstruction to the course of the secretion or to a failure of absorption through the meninges because of a chronic inflamation. If phenolsulphonephthalein is injected into the lateral ventricles it will find its way promptly into the subarachnoidian space unless there is an obstruction to the aqueduct of Sylvius. If it reaches the subarachnoidian space it will appear within a few minutes in the urine, unless there is a chronic meningitis interfering with absorption. Obstructive types of hydro-cephalus can be operated upon with some hope of relief, but cases of chronic meningitis up to the present time offer no prospect of success. A similar line of reasoning will help in cases of spina bifida, which frequently, after operation, terminate in a hydrocephalus.

MODERN TREATMENT OF ACUTE INFECTIOUS DIARRHEA

By A. J. Waring, M.D.,
Attending Pediatrist, Oglethorpe Sanitorium and St. Joseph's Hospital,
Savannah, Ga.

Acute infectious diarrhea, 'though possibly discussed "ad nauseam," is still and probably always will be, an ominous figure in the mortality records of teething infants. Some cases undoubtedly recover, however poor the treatment, and some unfortunately die, however skilled and sympathetic the attending physician. From the preventive standpoint much has been accomplished by the widespread efforts of municipalities to improve the quality of the milk supply. The tin-can milk of the corner grocery was a deadly weapon in the hands of the ignorant mother. The educational propaganda, such as the literature so well exploited by one large life insurance company, the more than valuable work of the American Association for the Study and Prevention of Infant Mortality, as well as the various efforts in the direction of baby welfare leagues, paternal and maternity bureaux, have all done much to instruct willing parents. The gospel of cleanliness, and the simplicity of boiling as a sterilizing agent, the increasing knowledge of the dangers to the teething child in the hot summer months, and the painstaking instruction of the district nurse in simple food preparations, are all notable factors making an impression at last upon the lethargic lay mind.

ETIOLOGICAL TREATMENT

Sera and vaccines are valueless in the best hands, and therefore at the present writing their use is merely an expense to the patient. The offending organisms fall chiefly into two groups:

(a) The Dysentery Group, and
(b) The Gas Bacillus Group.

In the dysentery group we have organisms that form toxins out of proteins and innocuous products out of carbohydrates. It is, therefore, reasonable to suppose that a dilute and dextrinized food is probably the wisest diet,—barley, rice, arrowroot, or cream of wheat gruel, given at regular intervals (1 to 4 hours) in quantities (1 to 6 oz.) according to the child's condition and gastric control. This diet may be wisely preceded by a twelve to twenty-four-hour starvation interval, when only weak tea sweetened with saccharin is given. In this early stage a dilute solution of condensed milk, malted milk, or lactose 5 to 7 % is justifiable. The lactose solution recommended by Morse supplies a certain amount of energy, saves some tissue destruction, and possibly in its slow absorption from the intestines produces a certain amount of lactic acid, unfavorable to the growth of the dysentery bacillus. As the disease progresses favorably, the

cereal and carbohydrate diet can be strengthened and only after convalescence is nearly established should cows' milk be added to the dietary, preferably boiled skimmed milk in small, then increasing amounts added to gruel mixtures. Panapepton, liquid peptonoids, egg albumin and broths, all ideal culture media and gas producers, are never used by the writer.

In the Gas Bacillus Group we have organisms that thrive rapidly on carbohydrates, though inhibited by the presence of lactic acid. The diet in this form of infectious diarrhea is "par excellence" a protein food with a certain small amount of carbohydrate present to favor the growth of the lactic acid bacillus. A prepared fat-free lactic acid milk, buttermilk, or casein milk is suitable diet. The blood rapidly disappears from the stools, lumps of soap masses coated with green mucus appear, and finally these masses coalesce to form the solid white or light green soap stool that is characteristic in this form of diet. Unfortunately it is hard sometimes to tell which organism group is the offender; and, as we can readily see, the diet of one group is largely carbohydrate while the diet of the other is largely protein. Sometimes a dietary of ten or twelve hours will tell us which diet is the better. The German school is prone to place carbohydrate fermentation at the base of nearly all diarrheas and rather neglects the infection by organisms. Essentially all diarrheas are treated with casein milk and the results are often markedly good. In weak and poorly-nourished infants to whom starvation and a dilute cereal diet (practical starvation) would be dangerous, the writer always turns to casein milk and buttermilk, for here medicine is often food and food medicine as well. Where the child is robust to begin with, vomiting a marked symptom, the fever high, and the toxemia significant, a dilute carbohydrate diet seems the better method of feeding, and a preliminary course of starvation most wise. Casein milk is contraindicated in all vomiting cases (as is really *all* food) and where the toxemia is high. The diet of the child preceding its illness will occasionally furnish a clue as to the food to avoid. In all cases, cultures of lactic acid bacteria may be helpful. Liquid cultures are best, two to four tubes daily. The Bulgara tablets are excellent and should be given freely if used at all, in doses of three to four tablets every three hours for five to seven days.

It will be noticed that the writer has laid emphasis on clinical points rather than bacteriological, because unfortunately these really constitute the data that many of us must use. The Boston school has always laid emphasis, possibly wisely, upon the close study of the stools. The reports of Morse and Talbot will repay study and thought. The methods of differentiation between dysentery proper and the infectious diarrhea, due to the gas bacillus, have been excellently epitomized by Mulherin, of Augusta, in a recent paper. The writer agrees absolutely with Mulherin that the simple test on stools devised by the Boston school should be attempted as a working hypothesis and its value given a thorough trial by Southern physicians. Nevertheless there are a few points to be emphasized and not forgotten:

1. The presence of large numbers of an organism in the stool is not always a fair inference that the disease of the patient is due to this particular organism. Many enteric diseases are essentially bacteremial. Typhoid fever, for example, and often the typhoid bacillus is isolated with difficulty from the stool of the typhoid patient (35 to 45 % in children).

2. In a visit to Boston in the fall of 1916, the writer detected a waning enthusiasm over the essential value of this method of etiological differentiation.

3. Unless recently contradicted the statistics of the Pediatric Service at the Johns Hopkins Hospital, where practically all cases of ileo-colitis are treated with casein milk, were as good as those of the Boston school. The writer has seen cases of acute infectious diarrhea that gave no gas production with dextri-maltose that convalesced rapidly on lactic acid fat-free milk.

With these points in reserve the writer expects, however, to use the stool method of bacterial diagnosis this Spring and Summer, but only as a working hypothesis. There is no doubt about the importance of the diet properly used when the etiological diagnosis is correct. The crux of the

writer's skepticism lies in the fallibility stool test.

SYMPTOMATIC TREATMENT

Catharsis.—Castor oil one-half ounce with aromatic syrup of rhubarb one drachm as initial cathartics are excellent, repeated if necessary, and when vomiting is not in evidence. In vomiting cases, calomel in one-quarter grain doses every half hour, ...TO.... grains one and a half or two and a half, is indicated. The less cathartic used the better and no child suffers so miserably and sometimes fatally as that child who receives another cathartic and even less food with each succeeding change of doctor. In children not seriously ill, running a low fever, and having what the laity call a "bloody flux," small hemorrhagic stools, gelatinous with clear mucus, small and frequently repeated doses of saline cathartics, repeated until the stools become yellow, sometimes effectively cut short the course of the disease.

Antiseptic and Antidiarrhoeic Treatment.—Both procedures are contraindicated in the acute stage, particularly if lactic acid cultures are given. Where convalescence has begun and a chronic diarrhea persists, bismuth salts, particularly the subsalicylate, and paregoric, are sometimes efficient in allaying intestinal irritability. Tenesmus and choleraic stools are often benefited by hypodermic use of atropin one three-hundredth of a grain and morphin one-hundredth to one-sixtieth of a grain. Starch and laudanum enemata the writer has found of no value. In very bloody stools rectal injections of a 2 % solution of silver nitrate sometimes help greatly.

Treatment of Vomiting.—When uncontrollable vomiting is always a grave symptom, and when associated with meningismus and acidosis can rarely be checked. Gastric sedatives, cocaine, morphin and lavage are usually ineffectual. All food is naturally contraindicated.

Treatment of Collapse and Mummification.—These rapidly appear in severe vomiting and choleraic cases. Here hypodermoclyses of normal saline, or 2 to 5 % glucose solution, are essential methods of treatment, and often life-saving. The apparatus is not expensive nor the procedure difficult, and the writer's experience has been that this valuable procedure is often employed too late and as a sop to frantic parents where the case is *in extremis.* One hundred to three hundred cubic centimeters every four to six hours according to the facility with which the fluid is absorbed are best given in the flanks.

Treatment by Stimulants.—Brandy by mouth can be used under ordinary conditions. The writer is skeptical in regard to the value of alcohol for this purpose. One-half grain of camphor to ten minims of bland oil or one to two grains of caffein sodium benzoate (25 % caffein) are excellent for quick response. Digalen ten minims or one three-hundredth to one two-hundredth grain of digitalin are useful for supportive stimulation.

Treatment by Climate.—Lastly and by all means of great value is a change of location in protracted cases. In our Southern climate even a removal of nine or ten miles to the salts produces an immediate beneficial effect.

In conclusion the writer would like to emphasize two points:

1. That no disease requires such constant medical supervision and observation as infantile dysentery.

2. First, last, and always, the physician skilled in infant dietetics will obtain the best results.

3 *Perry Street, W.*

THE EVILS OF DRUG ADDICTION AND OF THE TRAFFIC*

By W. D. Partlow, M.D.,
Assistant Superintendent, Bryce Hospital for Insane,
Tuscaloosa, Ala.

By reason of the fact that we unavoidably admit to the Hospital for Insane a small number of drug addicts classed as mental cases and legally committed as such, I am to this extent brought in touch with the question of drug addiction in Alabama, and have had occasion in this way to observe some of the evils and horrors connected with it.

We have many reasons to believe that the number of applications for admission to the Bryce Hospital for treatment repre-

*Read before Jefferson County Medical Society, Birmingham, Ala.

sent a very small per cent. of the total number of habitual drug users in Alabama. None can be admitted except those so extreme as to be pronounced insane by a court and so committed, and more than half of these applications are declined. Therefore, many go long without treatment, until they may become a public menace, and a greater number who have means quietly retire on a "rest" or "vacation," which they spend in some out-of-State private sanitorium. But in spite of these facts we received and treated within the four years ending October 1, 1916, 203 cases of drug habit. I have observed under treatment during the past fifteen years 750 to 800 persons of this class.

QUANTITIES OF OPIATES ENTERED FOR CONSUMPTION IN THE UNITED STATES DURING THE YEARS [illegible]

	1912	1913	1914	1915
Crude Opium, Pounds	384,911	441,276	441,623	353,606
Powdered Opium, Pounds	77,351	49,670	[illegible]	38,977
Morphine, Pounds	13,825	24,797	12,891	1,382
Other Alkaloids, Pounds	834	9,072	4,597	9,626
TOTALS	476,921	524,815	491,124	402,992
TOTAL DOSES	2,308,700,000	2,518,800,000	2,407,800,000	1,986,960,000

Note.—1 lb. Opium equals 11,520 average doses.
1 lb. Morphine equals 23,040 doses.

From Birmingham alone we received twelve applications for drug cases within six weeks in October and November of last year, and then there was a cessation of these applications only, it seemed, because they were practically all declined.

From the Report of the State Commissioner of Pure Foods and Drugs of Tennessee (Dr. Brown) we find in that State registered 2,370 drug addicts, using an average of $8\frac{1}{2}$ grams of morphine per day. Tennessee's statutes being more rigid on this point than ours, and other conditions fairly similar, we certainly have 2,000 to 2,500 drug addicts in Alabama.

Wilbert, of the United States Public Health Service, estimates that there are in the United States 118,000 morphine habitues, and this is a minimum estimate, others ranging as high as 2% of the entire population, which is evidently an overestimate.

Not allowing for the opium smuggled into the United States, we can believe that but proportionally a small part of this drug is consumed in legitimate medicine.

TYPES

The typical drug habitue has back of the habit, as a basis upon which it is established, an inherent weakness or predisposition rendering him an easy prey when conditions and circumstances of environment arise which are favorable to its development. Among these predispositions are moral imbecility, immoral perversity, hypersensitive nervous organization, chronic disease, nerve exhaustion from overstrain, irregular habits and dissipation.

When histories of individual cases are carefully studied and analyzed with a view to answering the question, "Why?", we find them coming from the various classes above mentioned.

The moral imbecile with an unfavorable family history of weaknesses or dissipations or neurotic parentage — having no moral stamina, passiveand indolent, chameleon-like—takes on to whatever is going on around him. If his associates steal, he steals; if they gamble, drink or debauch, he joins them; and likewise if he by chance falls in with a drug habitue he tries it, likes the sensation, repeats it with his pal a few times, for no reason in the beginning other than to do as did his friend, and then he is gone. Many, after getting well, can give no other reason for having begun the habit than that they "went with the gang."

The immorally perverse are the class of inferiors or delinquents who possess inherently a love for wrong-doing. They are met with in police courts with charges of vagrancy, theft, forgery, robbery, and every possible cunning and shrewd deception. They pursue everything irregular and offensive as measured by the standards of society, and contrary to law and order, because of their abnormal love for the things a normal mind shuns and abhors as shameful, shadowy and dishonorable. For this reason solely they associate with other users and take up the habit because

they look upon it as one of the condemned wrong things which they love.

The hypersensitive organization which reacts spasmodically and precipitately to every extraneous stimulus, whom we commonly term "high strung," "high-pitched" individuals, who easily exhaust from overconcentration and exertion, suffer from insomnia and general fatigue. They resort to the various "colas," alcoholics and patent stimulants or sedatives to buoy themselves up and make life bearable, and becoming accustomed to these, finally require something more potent. Knowing morphine to be conducive to comfort and sleep, they begin trying it ,and thereafter are powerless to turn it loose. For this class of so-called neurasthenics and the following chronics, the doctor usually gets the credit for starting on the hopeless morphine route. They usually say that they at first called their doctor. "He came and did nothing except give me a 'shot.' I called him again and he repeated the hypo., leaving a few tablets with directions. I decided it would be economy simply to get the morphine and take it myself, thereby escaping the doctor's bill, and I soon found I could not do without it." I am convinced that many good people get the habit innocently.

Dr. Terry, City Health Officer of Jacksonville, Fla., finds 213 cases had their origins as follows:

Physicians' prescriptions and treatment personally administered, 54.6 %.

Advice of acquaintances (mostly users themselves), 21.6 %. Dissipation and evil companions, 21.2 %. Chronic and incurable diseases, 2.4 %.

Quoting Wilbert, of the United States Public Health Service, "Lambert, Towne, and others who have made a study of drug addictions agree with the conclusions of Terry that a very large proportion of the persons addicted to the use of opium and its alkaloids have acquired their habit from the thoughtless renewal of prescriptions containing narcotics or by self-medication with preparations containing comparatively small quantities of an opiate.

"In this connection it may be said that it is not generally realized that the taking of even small doses of opium or morphine at regular intervals for a continued length of time will be more likely to develop the opium habit than the occasional indulgence in larger quantities."

No physician nor druggist who is familiar with the awfulness of degradation to which the habit sinks one morally and physically could ever feel that he was fully forgiven for contributing to the formation or continuation of the habit.

Persons habitually using opiates are popularly referred to as "drug fiends," and fiends they are, usually. One class is fiendish before it takes the drug, and forms the habit as a result of its fiendish desire, the habit aggravating and multiplying its depravity. Another class of normal moral and mental make-up falls to the lowest depths of moral degradation under the effects of drugs. It will make of the clergyman a thief, liar and deceiver. It has caused wives and mothers of purest virtue and noblest ideals to desert husband and children and fall to prostitution to obtain the drug. And if the awful results ended with the life of the individual so afflicted it would seem less gloomy; but we find often the progeny of the habitues marked constitutionally with the worst of physical, mental and moral stigmata of degeneracy.

REMEDIES

In this as in all other psychoses and neuroses, the matter of prevention is the paramount question. It is an easy matter in an institution to separate the patients from the drug and keep them separated for a sufficient length of time for the drug to be eliminated and the patient recuperate from the toxic effects of the morphine and return to his former state of health. This is usually accomplished rapidly and the patients all improve promptly, often gaining in weight twenty-five to fifty pounds in a few weeks. Especially is this true in those who have been using large quantities—½ to 1½ drachms per day—for a long time. The idea that is often so prevalent that there is some medical treatment which will cure the habit and give the patient a distaste or dislike for the effects of the drug, is a fallacy. If the patient and drug are kept apart for a sufficient length of time the patient, with ample nutritious food, will return to whatever degree of normal health he might have been possessed before the drug was taken, but no weakness or perversion of desires,

tastes or feelings can be eradicated by medical treatment as is popularly believed.

I often feel that we accomplish little by taking these cases and lifting them from the very depths of physical, mental and moral degradation to good health, for the reason that they can go right out when dismissed and again get the drug.

I feel that nothing worth while can be accomplished 'till we can get co-operation from the outside. In the first place, it should not be possible for a person to obtain opiates on which to form the habit, and especially if the habit is once formed, then certainly it should be impossible for that person to obtain the drug, without which the habit could not continue.

Then, who is responsible for this situation which we know exists by which hundreds and hundreds of drug addicts are going about our State obtaining from some source the poison which is sinking them deeper and deeper into a most awful existence, and how can it be corrected? In my opinion, the desired end would be practically attained by an honest, earnest co-operation of three classes or professions of men, viz: officers of the law, doctors, and druggists.

When the Harrison law was enacted it seems our whole people at once felt certain that the entire question of drug traffic would be taken care of. As I understand the Harrison law, it does not prohibit the traffic in opiates nor limit the quantity to be sold an individual. What it does undertake to do is to require registration of all persons dealing in opiates, and a record of all handled, and to whom dealt out. Our Alabama statutes, however, do limit the quantity to be given or sold, and restrict the giving and selling to licensed physicians, licensed pharmacists and licensed dentists. Then with the Government anti-narcotic law enforced and the Internal Revenue collectors' files open to inspection by local or county officials, as I understand to be the case, it seems easy to ascertain whether only those authorized by our statutes are dealing in opiates, and in what quantities. But while we need rigid enforcement of law to prevent drug traffic, in my opinion doctors and druggists have in their hands and within the sphere of their activities more opportunity, in spite of and independent of law, to increase the consumption of drugs; and the number of habitues continues to grow; or decrease the consumption and the number of habitues be reduced. Our law-making bodies, both state and national, have indeed been liberal to the medical and allied professions in matters of legislation pertaining to regulating and restricting the traffic in toxic dangerous drugs. We see so often in our statutes the following phraseology: "Provided, This act shall not be construed to apply to regularly licensed doctors and druggists, etc.," assuming in the first place that these professions are made up of men of judgment and information as to the dangers of drug addiction, and in the second place that they are professions governed and actuated by a code of ethics which does not permit disloyalty to a trust committed to us as guardian professions of the public's interests in this particular. And when we enter the medical profession we become individually morally responsible for the profession's conduct of this as of all other public health matters legally entrusted to us. Who will attempt to justify any doctor or druggist in prescribing or dealing an opiate to a drug habitue except possibly in a surgical or other emergency?

We should study histories, weaknesses, and the idiosyncrasies of our patients and thus avoid prescribing habit-forming sedative narcotic and anodyne drugs to any chronic complainer, be he hypersensitive or uncomfortable from any cause, for these remdies do not remove causes. They only blur the field and mask symptoms by obtunding Nature's indicator, sensation, and tempt the innocent patient to repeat. I often feel that the greatest criticism that could be made of medical teaching is that less space should be given to the uses or therapeutics of sedative and anodyne drugs, and much more space and time should be devoted to teaching their harmful effects and dangers.

SUMMARY

1. The indications are that the tendency toward habitual use of harmful drugs is growing and that conditions, especially in Birmingham, seem somewhat more favorable to the habitue's obtaining his drug than elsewhere.

2. We must depend upon the officers of

the law to protect the weak, vicious, inferior and criminal types of humanity against the drug habit by seeing to it that there is none obtainable except through those legally authorized to deal in these restricted dangerous commodities.

3. We must depend upon pharmacists, who are the legally authorized dispensers, to see that no member of their organized profession betrays a trust which is a breach of ethics, if not a violation of law, by permitting a particle of any opiate to go out of his place of business except upon the prescription of a legally licensed physician and within the bounds of accepted rules and standards for dosage.

4. Then the doctors can do the rest by refusing to prescribe or administer opiates to drug addicts and by protecting the innocent or the ignorant against the habit, and by teaching their patients the dangers of taking repeatedly or habitually any of the sedative or anodyne drugs, including the opiates.

An earnest campaign against the drug traffic, and for law enforcement, co-operated in by officers of the law, druggists and doctors, and backed by a wholesome public sentiment of the community, would sweep the thing out of Alabama, and drug addiction could be no more.

REPORT OF A CASE OF HUGE DILATATION OF THE ESOPHAGUS*

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and
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Cases of diffuse dilatation of the esophagus are not uncommon; but the case which we are about to report had a number of unusual features making it of considerable interest.

*Read at Meeting of the American Gastro-enterological Association, Atlantic City, June 1, 1917.

CASE REPORT

B. F. C., age 40 years, a brakeman by occupation, was referred to us by Dr. Z. K. Wiley on December 6, 1916, and was admitted to the Mercy Hospital. The patient complained of inability to retain food and gradually increasing weakness and eructations. His family history was negative; there is but little of interest in his personal history. He fell from a train in 1907 and fractured two ribs on the left side. He had been suffering for many years with headaches and constipation.

His appetite has been good. The bowels are constipated. There has been neither hematemesis nor melena. After the ingestion of a meal the patient has had to make repeated swallowing efforts in order to prevent the food's being regurgitated. Soon after eating eructations are produced, and the food is regurgitated, a mouthful at a time, lasting from two to four hours, and sometimes as long as eight or ten hours. He finds that he can swallow solids as well as liquids, but more discomfort is produced by solid food. Occasionally vomiting of food eaten the day before occurs. The patient suffers at times with epigastric pain, radiating to the back between the shoulder blades, which he ascribes to gas. However, he is usually free from pain. Food taken can be regurgitated at will. He feels full and bloated after eating, but this condition is relieved by eructations or by vomiting. Nausea is frequently present and the patient complains of a bad taste in the mouth.

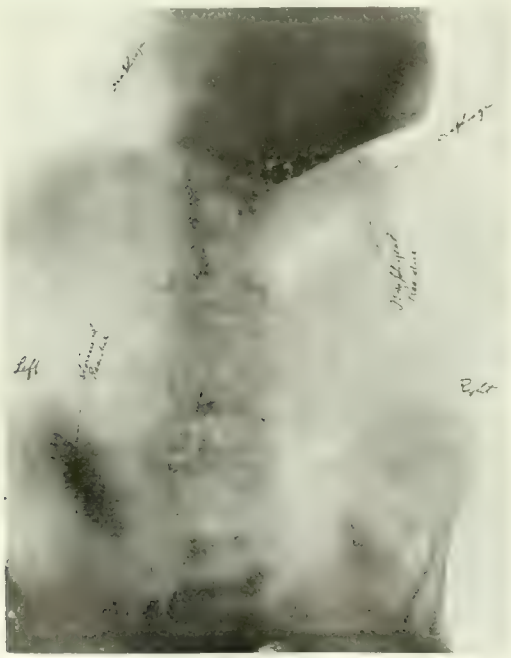
The patient had been a brakeman for nineteen years and has been drinking three or four cups of coffee a day. He has not been addicted to the use of tea, beer, nor whiskey. He smokes three cigars a day.

Present Illness.—The patient was perfectly well and had no digestive disturbance until his twenty-second year. At that time, after having partaken of a meal consisting of ham and eggs, indigestion set in, accompanied by pain in the abdomen and vomiting. The patient dates the onset of his trouble to that attack. Since then he has been regurgitating food and has had indigestion more or less most of the time. His condition has gradually become aggravated, although he has periods of complete relief from symptoms lasting a month or two at a time. He has gradually been growing weaker. When the indigestion is especially severe the skin becomes dry and cracked. The patient claims that he can eat with ease two-thirds of a loaf of bread, two eggs, two glasses of water and two cups of coffee; but in several hours regurgitation occurs. The appetite is good and is rarely satiated. The patient has lost about forty pounds in weight in the last six months.

On physical examination the patient presents a palid complexion and is much emaciated. His cervical glands are enlarged. The lungs are apparently normal; vocal fremitus is, however, somewhat increased on the right side and the percussion note appears to be of a higher pitch than that over the left side. The apex beat of the heart is found in the epigastrium just beneath the ensiform cartilage; the heart is apparently displaced downward and to the right.

I.
Antero-posterior view showing esophageal dilatation and bismuth in colon from previous day. Immediate plate.

III.
Lateral view chest, showing large dilated esophagus below and bismuth in esophagus above. Immediately after bismuth.



II.
Antero-posterior view showing esophageal dilatation; bismuth residue in stomach; gastroptosis. Immediate plate.

IV.
Antero-posterior view, showing small bismuth residue in esophagus. Shot in stomach attached to string and swallowed.

On examination of the abdomen no masses are observed, the veins are enlarged and plainly visible; the liver and spleen are not enlarged and there are no areas of tenderness. The external abdominal rings are enlarged and small hernias are present on both sides.

The urine presents neither sugar nor albumin. It contains a few pus cells, oxalate of lime crystals and a few hyaline casts. The blood examination reveals a total red count of 3,540,000; white count, 7,300; and hemoglobin 65%. The differential count is as follows:

Polymorphonuclears, 70%.
Small mononuclears, 23%.
Large mononuclears, 6%.
Eosinophiles, 1%.

The Wassermann reaction is negative.

The stool is soft, brown, alkaline in reaction, contains traces of occult blood and triple phosphate crystals. Neither parasites nor ova are present.

The contents of the esophagus were removed one hour after an Ewald test breakfast; 530 c. c. of contents were obtained, white in color, of a total acidity of 25 and with an absence of free HCl, with mucus and lactic acid in abundance and also containing occult blood. Microscopically the contents contain starch granules, yeast cells and Oppler-Boas bacilli. Twelve hours after a retention meal 650 c. c. of contents were removed presenting the same characteristics as have been already described. The capacity of the esophageal dilatation was found to be 1,700 c. c.

An X-ray examination revealed an enormous dilatation of the esophagus with marked retention. This retention was most marked for 24 hours, and to a slight degree even for 48 hours. The barium could be seen trickling through an exceedingly narrow orifice. The retention was so great that it was difficult to obtain any satisfactory plates of the stomach itself, for the small quantity of barium which would trickle into the stomach would pass out almost as quickly as it entered. Small quantities of barium were, however, observed in some plates far down in the abdomen pointing to a gastroptosis.

A diagnosis of diffuse dilatation of the esophagus was reached and attempts were made to pass through the strictured area. At first an Einhorn duodenal tube was introduced, but failed to pass the cardia. The patient was then allowed to swallow a thread, which gradually found its way through the cardia into the stomach; gradual dilatation being contemplated, when the string had passed sufficiently far to be used as a guide for the passage of perforated olive bougies. After frequent attempts it was observed that the thread would not pass through the stomach, notwithstanding the fact that it was left in situ at various periods for from 24 to 48 hours. This was due to a marked pylorospasm, as was subsequently observed at operation. The patient was exceedingly weak and so emaciated that further delay was no longer considered safe, and it was deemed best to open the abdomen and dilate the cardia from below.

On December 15, a gastrotomy was done under rectal ether anesthesia. The stomach was opened on its anterior surface near the cardia and the silk thread which had been previously swallowed was delivered. With a little effort the index finger of the operator was forced through the cardia into the esophagus and bougies of various sizes, including the largest, were passed. Inasmuch as there was but little difficulty in finally passing the largest bougies and on account of the danger of infection due to the great amount of manipulation in the stomach, it was deemed advisable to close the stomach. For a few days the patient was able to swallow and was free from attacks of vomiting, but was soon again unable to retain any food. It was, therefore, deemed advisable to perform a gastrotomy, which was done on December 23 under local anesthesia. The patient was fed at once with small quantities of fluids through the gostrotomy opening. He was exceedingly weak, however, and did not rally, and died on December 26.

Autopsy Findings.—The thorax and abdomen were opened in the usual manner. The left thorax was normal; when the right lung was pushed aside the enormously-dilated esophagus was revealed. The esophageal dilatation was fusiform in shape, the smaller portion of which extended as high up in the neck as the cricoid cartilage. The esophageal sack held as much as 1,750 c. c. of water. The stomach was about normal in size, with a capacity of 750 c. c. The other abdominal organs were normal. This case presents a number of rather interesting features; the most important of which are: first, the very extensive dilatation of the esophagus; and, second, the inability of the silk thread to pass through the pylorus.

While cases of idopathic dilatation of the esophagus due to cardiaspasm are not infrequent, it is unusual to observe cases presenting dilatations so extensive as the one reported, the capacity of the esophagus being 1,750 c. c., over twice as great as that of the stomach. It is unusual, too, no matter how marked a stricture might be, to observe that a silk thread will not seek its way through the stomach into the bowel, it being well known that a thread will find its way through any passage that water will. In our case this difficulty was demonstrated to be due to pylorospasm. It is quite probable that if the patient had been examined at a less advanced stage of his affection it might have passed without difficulty. Inasmuch as the passage of the thread is the most important feature preliminary to proper treatment of this condition, the usual treatment—that is, dilatation by the passage by perforated olive bougies over the thread drawn taut, could not be practiced.

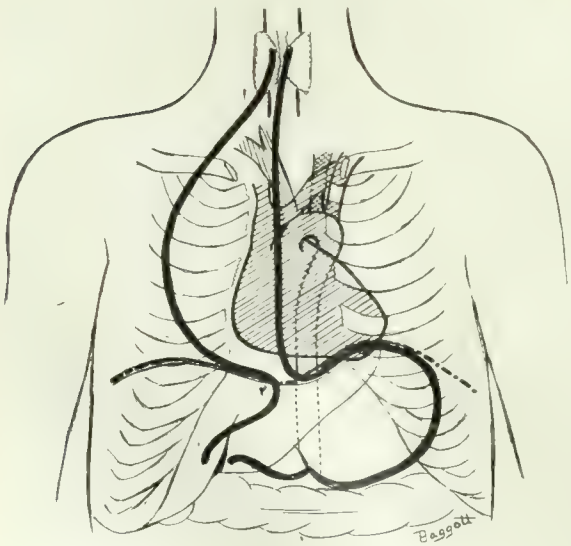
The question as to the etiology of id-

V.

Antero-posterior view, showing esophageal dilatation, cardia and stomach residue. Stomach ptosed in left iliac fossa.

VII.

Dilated esophagus and stomach inflated with fluid after removal at autopsy.



VI.

Diagram esophagus and stomach as shown at autopsy.

iopathic dilatation or the esophagus has been a matter of some discussion, especially regarding the question as to whether the cardiaspasm precedes the dilatation or follows it. Both Strumpel and Mikulicz recognized the importance of cardispasm in the development of diffuse dilatation of the esophagus, yet the credit is due Meltzer, who first pointed out the important relation between the two conditions and demonstrated clearly that the dilatation is really a stagnation ecstasie due to the contracted cardia produced by a disturbance of innervation. On the other hand, Rosenheim maintains that the cardiospasm is secondary to the dilatation. Strauss believes that both the spasm and dilatation occur simultaneously, both due to a vagus paralysis. On the other hand, Fleiner looks upon the

dilatation as congenital, though it may remain latent for years. Myer points out that this affection is frequently observed in enteroptotic individuals in whom it is not unusual to observe other spastic conditions. There is a general consensus of opinion, however, that cardiospasm is really the primary state and that the dilatation is the result of this spasm, for, by means of the fluoroscope, the increasing dilatation has been demonstrated as a result of the spasm. We are firmly convinced, too, that the cardiospasm is the primary condition, and that dilatation is a subsequent manifestation. This case which we have just reported presents another illustration of how a disturbance of innervation may finally lead to organic changes.

AUTHORS' ABSTRACTS

Medicine

Cultivation Experiments with the Blood and Spinal Fluid of Pellagrins. Edward Francis. United States Public Health Service, Hygienic Laboratory, Bulletin No. 106, January, 1917.

Anaerobic cultivation, somewhat after the method described by Noguchi for growing spirochaetae, was carried out on the blood and spinal fluid of pellagrins.

Blood and spinal fluid were cultured from each of 17 colored pellagrins at the State Insane Asylum, Milledgeville, Ga., 7 of which proved fatal between 6 and 37 days after the materials were obtained from them. In addition, blood was cultured from 4 mild cases at the U. S. Marine Hospital, Savannah, Ga.

Each inoculated culture tube contained (a) fresh rabbit kidney; (b) either ascitic fluid or a mixture of 1 part ascitic fluid and 2 parts meat-infusion agar (40.5), which latter in some cases contained 2 % of glucose, (c) either fresh spinal fluid drawn by lumbar puncture or fresh blood drawn from the median basilic vein (defibrinated or citrated), and (d) either a 1-inch column of sterile paraffin oil or no oil.

All culture tubes were incubated without the use of special anaerobic apparatus at 37° C. for two or three weeks, at the end of which time examinations were made with the dark-field microscope.

The results of the examination of the cultures were negative; the cultures either remained sterile or an occasional tube showed a growth which was evidently a contamination.

Lumps in the Neck, with Special Reference to Tuberculous Cervical Adenitis. Jno. B. Hawes, Boston, Mass. Interstate Medical Journal, Vol. XXIV, No. 3, March, 1917, p. 259.

Lumps in the neck may be due to enlarged glands caused by—

1. Chronic or subacute inflammatory process.
2. Syphilis.
3. Carcinoma.
4. Sarcoma, malignant lymphoma or Hodgkin's disease.
5. Leukemia.
6. Tuberculosis.

Among the causes of the first group may be carious teeth, diseased tonsils or adenoids, pediculi capitis, and running ears. They are apt to be associated with acute infectious conditions. Treatment is to remove the cause.

The diagnosis of enlarged glands due to syphilis depends upon the history of infection and signs of syphilis elsewhere. The Wassermann test may or may not be positive. Ulcers due to syphilis do not respond to ordinary methods of treatment. The treatment consists naturally of anti-syphilitic measures.

Enlarged glands due to carcinoma are usually of metastatic origin. Diagnosis should be confirmed by excision of the gland and by pathological examination. In most instances treatment is of little or no avail.

Glands due to sarcoma or malignant lymphoma or Hodgkin's disease are sometimes impossible to diagnose at first. In case of doubt the gland should be excised. Radium and X-ray treatment may be of great help and may prolong life for years.

In Leukemia a blood examination will usually give the correct diagnosis at once. Radium and X-ray treatment may help in the majority of cases. Treatment consists in making the patient as comfortable as possible.

Tuberculosis.—Enlarged gland due to this cause are so common that it is better to consider all such processes tuberculous until the contrary is proved. Such glands may be of any shape, size or consistency. They may come on slowly or rapidly. They may or may not cause symptoms local or constitutional. I make it an arbitrary rule that whenever such glands have lasted for more than three months in the absence of an obvious cause, they are probably tuberculous by that time and are to be treated as such. In cases of doubt I have a gland excised and examined. Treatment consists, first, in removing all sources of infection. Second, general hygienic measures. The amount depends upon the individual case. Heliotherapy or sunlight treatment is of the greatest benefit in all cases. Surgical procedures may or may not be necessary, depending upon (1) the size of the glands and whether they are easily amenable to removal by operation; (2) whether the patient's condition is such as to warrant an operation; (3) whether the standard of surgical skill available to the individual patient is sufficiently high. Tuberculin may be of great help in certain instances. In many cases it does a certain amount of good and in no case should it do harm. All four methods of treatment should be used.

(Continued on page 733)

TROPICAL DISEASES AND PUBLIC HEALTH

PUBLIC HEALTH ADMINISTRATION AND WHAT HAS BEEN ACCOMPLISHED IN GLYNN COUNTY, GEORGIA*

By T. F. Abercrombie, M.D.,
Commissioner of Health,
Brunswick, Ga.

For the successful administration of any health work in any given locality there must be: first, adequate state laws and a state board of health; second, there must be a local board of health to employ the local health officer, to provide necessary expense and promulgate rules and regulations for carrying on health work in their respective localities; third, there must be an officer entrusted to carrying into effect these laws, rules and regulations.

The paramount duty of this officer should be to protect human lives from preventable diseases.

Health work as a county proposition is in its infancy and the health officer who undertakes the administration of health work in any county has no easy task.

The first thing for any health officer to do is to make a survey of every situation affecting the public, to find out what is really needed to be done, and then advise ways and means to do it. Second, the health officer should gain the confidence of the public before undertaking any radical change, and one of the best means of doing this is through the newspapers, lectures to the public, to schools, to organizations, such as civic leagues, parent-teacher associations, and farmers' institutes.

In our survey of Brunswick and Glynn County we found things that needed attention most were a better milk supply, a better meat supply, some better system of surface privies, both in the City and in the County, better sanitary arrangement for schools, better sanitary arrangements for St. Simon's Island, mosquito and fly problems, high death rate of the Negro, medical inspection of schools, and follow-up work after examination of school children, and a better system of mortality and morbidity statistics.

There are many more, but these stood out in bold relief; so you see what a problem the health officer had to set about to attempt to have these conditions remedied.

Brunswick and Glynn County were no worse off than any other city and county in any state, for I venture the assertion that most of the conditions enumerated can be found in practically any county in any state.

By hard and persistent work our dairies will compare favorably with the best in the State and as a result of a better milk supply our infant mortality has steadily decreased each year. We have a thorough system of market and food inspection. Every piece of meat sold in Brunswick is inspected by a competent veterinarian. All surface privies in the unsewered area of Brunswick have been made fly-proof, and as a result the first year our typhoid fever rate dropped over 50 %. Within the last three months over one hundred surface toilets have been eliminated by connections being made to a sanitary sewer. Some three miles of sewer have just been completed that will eliminate three hundred more surface toilets. At a recent meeting of the Board of Education a resolution was passed instructing the Superintendent of Schools to have sanitary privies at all rural schools, subject to the approval of the Health Officer; and the contract has been awarded for such work. We already have some of our rural schools equipped with modern sanitary arrangements, and a number of rural homes have sanitary toilets or sewers. St. Simon's Island, a summer resort, has a modern sanitary sewer with connections made. Brunswick has enjoyed the freedom from mosquitoes all year when the inland towns have been infested with the pests. Brunswick has been particularly free from flies due to the enforcement of an ordinance

*Read in Section on Public Health, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

requiring the removal of all manure outside of the City every four days, or if kept longer to be put into bins of some impervious material, such as concrete or heavy matched lumber. We have at present a community nurse to do especially two things: infant welfare work and tuberculosis work. Medical inspection of schools is done in the rural sections as well as in the City, and we believe we have an arrangement that no other county in the State has, and that is free dental clinics and free treatment for defective eyes. We likewise have removal of adenoids and tonsils of school children whose parents are not able to pay for such treatment, and also hookworm treatment, typhoid vaccinations, smallpox vaccinations and diphtheria antitoxin free to any one in the County. We have recently had a demonstration of the value of an all-time Health Officer. On October 9 there were two children who went down with diphtheria from one grade of the public schools of Brunswick. The Health Officer immediately took cultures from all the children in that grade and found one carrier. Cultures were taken from three other grades of the same age group, but no carriers were found among them. The one carrier was isolated until the nose and throat cleared up. There were no further developments. One of our sister towns of about the same population as Brunswick had about fifty cases, and the schools were closed on account of it. We have a plan whereby the County will make concrete septic tanks and supply them to any one in the County at actual cost. Mortality and morbidity reports are made promptly by the physicians of the County. For the first time in the history of Brunswick, for the last ten months, the births reported have exceeded the deaths. We have every reason to believe we are getting complete returns on all births and deaths. Whenever there is any sickness in the County the Health Officer is usually sent for to see if there are any conditions that can be remedied.

In enumerating what has been accomplished we do not do it boastingly, but to show what can be accomplished by a systematized effort. Nor do we wish you to believe that health conditions in Brunswick and Glynn County have reached the ideal—far from it, for the work has only begun.

DISCUSSION

Dr. W. Frank Ashmore, Anderson, S. C.—The doctor mentioned a septic tank. I would like to know if that septic tank renders the matter sterile. If it doesn't, what good does he derive by using the septic tank, especially where there are surface wells? Over home, we are having quite an enthusiastic wave along sanitary lines, especially among our schools, and in the City and County generally, and this septic tank proposition has been brought up. I, as Chairman of the local Board of Health, asked the man who was representing this septic tank if it did render the excreta sterile. He said it did not. Well, I think we ought to be quite careful how we recommend those things unless it does get rid of it, for soil pollution, as you know, is one of the main sources of hookworm and many other diseases that we are subject to in the South, and I would like now to ask for information about the Kaustine proposition. It strikes me as being very efficient. They use any size tank that you want; it is made of galvanized iron or metal and they guarantee it to last twenty years or more. By the way, I'm not Mark Hanna at all for this concern; I'm after something good. After it had been used for about six weeks in a Negro district I had some of the contents examined, and it was found sterile and odorless. And they guaranteed it to be at all times. It is cheaper than the septic tank. I think it would pay us to investigate the matter along that line. There is nothing which goes into the soil; it is rendered absolutely sterile; and it is pumped out. They claim a 120-gallon capacity tank will last for six months for a family of six people. Everything is dissolved; it is strictly liquid; and then adding a little commercial sulphuric acid to that, you get an excellent fertilizer. I don't know just how the chemical combination comes about. We have in our town tomorrow night a public health meeting. The ministers have all decided to postpone their prayer meetings for tomorrow and instead of prayer meetings, have a general health meeting, and I hope to get back for it. I would like for the gentlemen present to discuss that subject freely, for I am anxious to get some points. Sanitation is the only thing to do in preventive medicine. Last year, our County Medical Association went before the Board of Trustees of our schools and asked permission to examine all the school children. We found a general average of 55 % of these children defective. The exact figures are as follows:

Number of children in City schools suffering from poor nutrition, 26; anemia, 131; glands enlarged, 83; trachoma, 93; defective vision, 230; defective teeth, 1,019; tonsils, 543; adenoids, 216; not vaccinated, 472; teeth not brushed daily, 301. Total number examined, 1,088.

This year we are going to do the same thing over again, and we are asking now for legisla-

tion that will give us compulsory inspection of school children and also a full-time County Health Officer. If we can get that, then all the children in the County will be under proper inspection and care, and I think that will be a great help.

Dr. A. T. McCormack, Bowling Green, Ky.—We have done some extensive experimental work along that line, and I can assure the membership here that the effluent from the tank properly conducted and properly cared for is entirely sterile. We were unable to make this statement until comparatively recently. Constant experiments have been made at the State University Experiment Station, and they have been unable to obtain any bacteria of the colon group in the effluent. The privy was an experimental privy entirely. It was used by twelve healthy individuals and, in addition to that, was charged from time to time with pure cultures of typhoid bacilli and other bacteria and products that would be ordinarily water-borne and wouldn't be immediately destroyed by the water tank, and we have been unable in any instance to find that the effluent was not sterile except when the water was poured in too freely, as it had been done in some of the tanks. In some instances they ran the rain water from the roof of the privy into the tank. Of course, this misses entirely the primary object of the water; it isn't put in as a diluent; the tanks work almost as well without the water as with it, as far as destroying the bacteria is concerned; the water is put in for the splasher. The splasher in the L. R. S.'s privy we found to be impractical, and we found in addition that the splash of the water through the hole did all that the splasher did in addition to diluting the fluid. We now have about thirty-six thousand of these privies in Kentucky. We have several hundred in our schools and they are universally satisfactory. It is of special interest that they were universally unsatisfactory when they were first built because for the first few weeks, unless they were very well charged with the manure and got a large amount of the nitrifying bacteria, during the first three or four weeks nearly every school wrote us they were objectionable. But after the six weeks were up and there was enough nitrifying bacteria, they were all right. Dr. Curry, our State Sanitary Engineer, has devised a portable form that weighs twenty-two and a half pounds that can be sent by parcel post anywhere, and with this form a hundred or two tanks can be built without any difficulty. It is portable, can be knocked down, and we are able to ship it, or any health officer can mail it.

Dr. Abercrombie (closing).—In regard to the septic tank, as to the effluent's being sterile, I have never made any examination. I am only taking the opinion of authorities of the different state boards of health that have made them. In my County we have, I guess, a condition that doesn't prevail in very many counties. We don't have the clay; we have sand beds. The effluent is poured out in the sand. We don't have any strata in the soil that will pollute our wells.

INTENSIVE COMMUNITY SANITATION IN VIRGINIA: METHODS ADOPTED AND SOME RESULTS*

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Intensive community sanitation may be defined as a determined effort to demonstrate to the lay mind in a locality that the claims of preventive medicine can be established.

PURPOSE

These campaigns in a community afford an opportunity to go out and definitely prove to the satisfaction of the average man that the statements of public health workers in pamphlets, bulletins, newspaper articles and public addresses are demonstrable facts. Intensive community sanitation has for its object the accomplishment of some definite piece of health work and efforts are exerted to bring about tangible results.

HISTORY

This phase of public health work is the sequel of the hookworm campaigns conducted by the Rockefeller Sanitary Commission during the years of 1910-14. One of the tasks outlined by the commission was "to make at least one community demonstration in the hope that such intensive community work might prove the key to more extended operations on the part of the state and local communities." In keeping with this purpose, plans for the intensive community type of work were projected on paper as early as June, 1913, and were first put to practical test on Knott's Island, N. C., in September, 1913.

In March, 1914, Dr. H. H. Howard, Director for the West Indies International Health Board, proceeded to use this system in the fight against uncinariasis in British Guiana. This intensive work has become the prevailing type throughout the West Indies and Central America in the crusades against hookworm infection.

On May 1, 1914, work was begun in

*Read in Section on Public Health, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

Albemarle County, Va., and on May 8, 1914, in the Salemburg community, N. C. Subsequently work in other communities in the same and other states was undertaken. On January 1, 1915, work was started in Southampton County, Va., where three communities were partially sanitated. In July, another unit was started in Prince William, and before the close of the year two other units were put into operation, making four within the State. There are now six states, together with the West Indies and Central America, employing this method of health work.

ORGANIZATION

The organization for the conduct of a unit in community health work consists usually of three men, — a field director who is a physician, a microscopist, and a carpenter. In some instances it has been found advisable to dispense with the microscopist and use more carpenters to hasten the construction work and to send part of the microscopic work to the State Laboratory.

CONDUCT OF A CAMPAIGN

When a county has been chosen for health work under this system the first problem that confronts the director is the selection of the communities in that county where the intensive campaigns will be conducted. This is usually done by visiting the different communities in the county and assembling the people in mass meetings and there explain the nature of the work to be done. Three communities are selected that promise the greatest degree of co-operation in the work to be undertaken. The population of a community consists usually of 100 to 125 families and embraces on an average of 25 square miles.

THE SURVEY

The next step is to start the sanitary inspection of the premises in the communities. Special attention is given to soil pollution on this visit, a record is made of the kind of sewage disposal at each home, character of the water supply and its protection against possible pollution and a census is taken of the community. Instructions are given how to make his well or spring safe, how to make his privy flyproof and containers are left for collecting specimens for hookworm examination. Notation is made of this information in a book and is known as the "sanitary survey." The microscopists call at the homes and collect the containers for intestinal parasitic examination as soon as the survey is completed. The specimens are examined either in the temporary laboratory established in the community or sent to the central office of the State Board of Health. The positive cases are visited by the Director and treated. Re-examinations are made and other treatments administered where necessary. The carpenter follows the survey and shows the householder how to make his privy safe and where desired helps him in the construction of it.

EDUCATIONAL WORK

While the microscopist and carpenter are pushing their work the director wages an educational campaign by holding meetings in school houses, churches, halls and other public meeting places and delivers talks on hookworm infection, typhoid fever, malaria, tuberculosis and other communicable diseases. Many of these lectures are illustrated with stereopticon slides and charts. Literature consisting of bulletins and leaflets from the State Board of Health is distributed in every home and the highways and public places are placarded with signs bearing striking sentences pertaining to the preventable diseases. Every opportunity is seized to emphasize the importance of rural sanitation and the subject is discussed in the roads, on the doorsteps, in the fields, in the stores and wherever people can be approached.

The definite object of the campaigns in Virginia has been to check soil pollution and thereby control filth-borne diseases. Experience has shown the writer that the privy problem and hookworm disease are distasteful subjects to many communities, and in order to accomplish the desired end the matter must be handled with diplomacy and discretion. It is frequently necessary to approach a community with some subject that especially interests it, and in this way the forces in that community may be mustered to cooperate in securing the results in the way of preventing soil pollution. For this

reason the educational part of the campaign should be conducted on liberal lines and as many persons interested in health problems as possible, but always remembering the purpose of the campaign and press home its importance whenever the opportunity is offered.

MEDICAL INSPECTION

Medical inspection of school children has become very popular in some counties of Virginia, and this has frequently stimulated interest in the health campaigns. Such inspections are intended to discover the gross physical defects in children and deal with the eyes, teeth, tonsils, adenoids, eruptions and anemia.

TIME AND COST

The time spent in a series of communities is three months. This enables one field director to work in four counties in one year. However, some counties have extended the work by making additional appropriations and thus continuing the campaigns for six months or longer. The cost embraces $450.00 per month, or $1,350.00 for a three months' campaign. The sources of this amount are as follows: $150.00 per month from the International Health Board (the Rockefeller Foundation), $150.00 from the State Board of Health and $150.00 per month from the county.

RESULTS

Some of the results of intensive community sanitation can be shown immediately upon the completion of a campaign. The more convincing results will follow with the reduction of filth-borne diseases. Below will be found a short summary of microscopic work for hookworm infection and the cures effected with sanitary improvements in Virginia covering 48 communities in 14 counties: Number of examinations, 10,924; positive for hookworm, 860; cured, 376; number of privies constructed, 3,237.

As a result of education and agitation in communities many places have been drained near houses where anopheles mosquitoes were breeding, thereby preparing the field for larger activities in anti-malarial work. The four months' anti-malarial campaign conducted in Emporia was a consequence of intensive community sanitation in Greensville County.

Another result of these campaigns is the correction of some of the physical defects in school children where school inspection is done as an incident to the work. It is a source of regret that we can not report a large percentage of corrections, but we do know of many individual cases that have been corrected which would have remained neglected had not the discovery been made by the director. The collection of data in regard to defects has impressed the communities with the need of some follow-up system and several counties have employed nurses to follow up the cases and urge correction of defects.

The most important result of this work in a community and county is the stimulation given public health work. It arouses interest and establishes confidence in the minds of the public to the extent that it is easier to secure local appropriations for extending health work. Greensville County affords a striking example of this. After the completion of the first series of communities in the County a second appropriation was made to continue the work for another three months' period, and before the completion of the second series of communities the town of Emporia, the county seat, employed a whole-time health officer to look after the sanitary conditions of the town and control of preventable diseases in the community.

The stimulation given the installation of sewerage systems in the small towns is a result of this work that has brought forth fruit. In Rocky Mount, Va., the matter was taken up with the town council and townsmen and since that time bonds have been sold, contract awarded and work begun on a sewerage system for the town.

DISCUSSION

Dr. E. Mack Parrish, Dallas, Tex.—Quite recently I was much impressed with the final report made to the Rockefeller Foundation by the Hookworm Commission, which summarized the work that has been done. It shows that in the village and rural communities surveyed, 50 % of the famlies had some kind of privy, and that 50 % had none when the work began. It shows that one-third of the people examined had hookworm infection in such communities. That is

to say, that from 1,087,000 laboratory examinations made, 33 % gave positive evidence of the disease. It seems to me that this is a very serious condition of affairs from that end of rural sanitation, and certainly soil pollution is one of the big problems to be solved.

I wish to emphasize the importance of soil pollution in any scheme of community sanitation and to say again that hookworm disease is probably only one of many serious diseases arising directly from this source in the Southern states.

Dr. Charles L. Minor, Asheville, N. C.—The future development of the medical profession is unquestionably going to be more and more toward the line of teaching the public and preventing sickness rather than treating it. The essence of this intensive community work is also teaching, as Dr. Flanagan has pointed out. As men go round in Virginia or in our State, where we are also doing a similar work, they will educate the people, who will by degrees become more and more intelligent in the subjects which we are teaching them, and then we shall have thousands of intelligent assistants in the work. After all, people do not want to be sick, and if they only can be shown the connection between their sickness and the insanitary surroundings, which they have heretofore not worried over, bad privies, bad sleeping rooms, etc., they will do their best to correct them, as has been shown many times. The profession, by its spreading abroad of medical truth, is unquestionably by degrees cutting the ground from under its own feet, but our profession ought to be idealistic enough to continue to do this fine work whatever its final result on the pockets. In any case, there will always be plenty of work for doctors to do, and we need not worry ourselves too much about it, even if the work we are doing is by degrees cutting off communicable diseases and lessening the demands upon our services. And we ought to be proud to belong to a splendid profession whose great and noble aim is to render services to humanity first and only secondarily to make money.

Dr. J. F. Yarbrough, Columbia, Ala.—This is a very interesting subject and one of great importance. It never will succeed until we inaugurate a campaign of education among the people. The Rockefeller Foundation work done in Alabama was an eye-opener to our people. In some rural sections the work was very vigorously opposed, but by a little tact and patience they were brought to see the benefits derived from the hookworm treatment, and all opposition at once disappeared. After seeing the results of this effort, I am thoroughly convinced that a campaign of education is all that is necessary to prepare almost any community for any kind of work desired.

Dr. Roy K. Flannagan, Richmond, Va.—We have one hundred counties in Virginia and in nineteen of them during the last two years, under the plan outlined, intensive rural health work has been done. Each of these counties had a three-month campaign with three State Board of Health men there, systematically sanitating three communities. You can very easily appreciate the fine effect of this public health education in places where such work had never before been attempted.

Many of these communities had no sanitary privies at the beginning of the campaign, yet 75 to 100 % of the families had them at the end. Reflect for a moment what effect such work will have on the future of these counties. We know definitely that good public health accomplishment depends upon the enlightenment of the public mind. As soon as the idea sinks into the heads of our rural population that sickness is due to the dirtiest kind of dirt and they fully realize that their bad practice of soil pollution makes inevitable the ingestion of human filth, they will take steps to install proper privies and see to it that they are used.

This intensive community plan drives home in a very concrete way this fundamental need of the rural districts. If there are any state health officers present who have not secured for their state the aid of the International Health Board in rural sanitary work, I wish to say here that they are losing a tremendous asset by not doing so.

Dr. James A. Hayne, Columbia, S. C.—I had intended to sit at the feet of Gamaliel today and absorb wisdom and not talk, but I can not refrain from saying a few words when the subject of rural sanitation and intensive community work is brought up.

In regard to what has been done in the State in which I have the honor to be State Health Officer, I am afraid I am somewhat pessimistic in regard to the results that would be obtained there from a campaign for the eradication of hookworm disease. In the first place, I was extremely doubtful as to the amount of hookworm infection that was in my State. A dog, you know, may be infested with fleas and yet not be a sick dog. There were many cases of hookworm disease in my State in which the individuals were perfectly well. When we went to some of our universities and found 80 students infected, and we saw these men playing football, with rosy cheeks and in fairly good health from all criteria, we were extremely doubtful as to whether or not they were really infected with a disease that would do them injury.

I saw cases of hookworm infection in Panama, and those cases I saw down there did not resemble the cases pointed out to me in South Carolina as hookworm infection. The diagnosis was at first made by a number of men going to a school and placing the students in a row along the wall and saying, "You have got it; you have not got it," and simply by seeing whether they had anemia or not. Knowing that anemia is due to a great many other things besides parasitic infection of the intestines, I was in doubt whether this snap judgment as to the extreme amount of hookworm disease in the Southern states was correct or not. When they adopted rational methods and used the microscope, it was fully borne out that there were a great many cases of hookworm disease as well as infection. Then, too, there was a great awakening on the part of the people of the State to have things sanitary. They learned that sanitation as recommended and carried out by the

United States Public Health Service was simply common sense, and there was a desire on the part of the people to be clean; that dirt was matter out of place, and the only dirt in that county was dirt that was out of place.

In Greenville County, the United States Public Health Service made a more extensive and intensive survey of work this summer. They visited over 13,000 homes in that County. They inspected the water supply; the disposal of human waste; and they made secondary visits to these people. They succeeded in getting about 30 % of the people of Greenville to put in sanitary privies. Greenville City had demonstrated conclusively that if you have nothing but sanitary privies and a good sewerage system in towns, you absolutely will do away with typhoid fever. Greenville is a town of 30,000 inhabitants. It has not had a case of typhoid fever for over a year and a half coincident with the establishment of 1,200 sanitary privies and sewerage connection to all homes in the city. This was a good county in which to work. We have two sanitary units, one in Orangeburg County and one in Dillan County. We are told that they are doing excellent work. We told them, in addition to other things, that we had 1,900 deaths from pellagra last year, and that diet would assist in the cure of pellagra; that is, proper diet would cure pellagra, to put it more strongly, and whether that propaganda has anything to do with the results or not I am not able to say. The number of deaths in our State from pellagra has been reduced one-half up to the present time.

Dr. Paul B. Johnson, Washington, D. C.—It seems to me that perhaps in educating the people we are not always getting at the very essence of the matter. Sanitary privies are built and people are educated in the use of a clean toilet, but does that make them any more careful in taking the precautions which will help them to avoid other germ diseases that are not spread by insanitary toilets? In the same way we educate them along other lines of cleanliness, but we are not getting down to the very point of the spread of these infectious diseases by germs. I may be wrong, but it seems to me the essence of the whole matter is that we have got, in some way, to get these people to believe in germs, get them to believe in the reasonableness of the fact that germs cause disease. It can be taught in different ways.

Dr. Hayne spoke about the use of the microscope in hookworm campaigns, as did Dr. Cooper in North Carolina. It gets the people to see something. They can see the egg of the hookworm. If they can be shown such things as the worms in vinegar, something they can see with the naked eye, after recognizing them with the microscope; we can get them to appreciate that there are things that can not be seen with the naked eye, and that those things may be and are inimical to their lives. They are all familiar with the fact of bread rising, and that one of the means of bread's being leavened is yeast, and they would realize that something must be alive to act as yeast acts. We must get the people to believe in germs before parents will be interested, for instance, in having children wash after going to the toilet.

Dr. P. L. Goss, Mulberry, Fla.—The one solution of the problem, in my judgment, is the acquirement of enlightened selfishness on the part of the people generally; and of this there has been a great deal said and written of late.

Illiteracy, poverty, filth, disease, sin, degeneracy, crime, superstition, jealousy, selfishness, hatred, etc., are all found in a community in relative proportion. Co-operation, as has been said, is the keynote of success. One brother remarked this morning that government control of public health is sure to come. Preventive medicine I consider is the medicine efficient and will be so considered generally in the near future. Disease is not a private but a public matter, and the greatest good can be accomplished only by concerted action on the part of the medical profession as a whole, backed up by the state or Federal Government. Dr. Wiley recently made the following assertion, which strikes me as being rather pertinent: "Old age is really the only respectable disease." We doctors should take the initiative and cease making merchandise of human lives, putting forth our efforts, individually and collectively, for Government control of public health.

We must remember that fear is the deadliest foe to progress. More enlightened selfishness is the need. Five years ago 26,000 medical students were enrolled in the different medical schools of the United States. Today there are only about 14,000. What does this mean? Fewer but better doctors in the future.

Dr. A. G. Fort, Tifton, Ga.—I am on the program to discuss the paper to follow, but as the author is absent and the subject is similar to Dr. Flanagan's paper, I shall take this opportunity of laying stress upon the points of interest to me.

About two and a half years ago I visited a section of Aikin County, S. C., where intensive community sanitation had been inaugurated. It looked good then, but I desire to know whether the typhoid incidence has been reduced. The Secretary of the South Carolina State Board of Health is present, so I present that question to him.

No one questions the value of building privies and as near sanitary ones as practicable. Every community should be taught their value, but while we are teaching it we must be patient for results, as we must face the fact that changing the habits of a people by education is not possible in a day or year. Therefore, my position is that we can and should vaccinate against typhoid fever and para-A and -B while we teach. To follow any other course would be at the sacrifice of thousands; we should save and teach. Toilets cost money, but vaccinations are usually given free and we are able to protect many more by vaccination than by building privies.

The matter of snap shot diagnosis of hookworm has been referred to by Dr. Hayne. I admit I was guilty for a very short time of this erroneous method, but allow me to state that those who followed this plan passed up many cases which should have been treated.

The microscope showed a greater percentage than did inspection.

I was very anxious for Georgia to do some intensive community sanitation, but the State Board of Health did not see fit to try it out. Why, I can not answer. So now it is up to the few health officers to do the best they can on their initiative, and I am advocating that we choose one definite thing to accomplish and do that, but while doing that do not neglect other important matters.

Dr. L. B. McBrayer, Sanatorium, N. C.—Examining the people of a community for hookworm is not intensive community health work, because there might be an epidemic of diphtheria going on there at the time, or there might be in that community of 15,000 or 1,500 people a goodly number of cases of tuberculosis that were being spread around, and there might be a great many other diseases that could be of great harm to the community, but intensive community health work should cover every disease, and I do not believe anything short of that is what we ought to have.

For the reason that we do not know of anything better, we have decided that the unit of health work should be the county, and that presiding over that county should be a health officer who would endeavor, perhaps, for the immediate time, to prevent typhoid by vaccination. As the last speaker has said, he would prevent having a return of the disease for two years by vaccinating the people. But to wipe out the disease forever he should install sanitary privies. The same would be true relative to hookworm disease. And the county health officer should inspect schools and follow the defective cases up, if possible, with a nurse and get all those found defective cured. In tuberculosis he would do some of the things that are considered proper now. He would find all cases, and those that were unable to care for themselves would be cared for at the public expense either in a sanitorium or by the county physician or county health officer, and by the efficient care of nurses, and so it goes. But I would not have you think I am opposed to those individual things because you have just heard this afternoon a paper read regarding the splendid work that is being done in one of the counties of Virginia. The County Health Officer, in the case of diphtheria, goes out amongst the family and neighbors and immunizes them against diphtheria. In the case of typhoid fever he would go out and immunize the people in the immediate neighborhood, perhaps, or certainly those who are going to come in contact with the patient. In the meantime he would look into all sources of infection and remedy anything that seemed to be improper. What a health officer can do is illustrated by the cities of Greenville and Asheville. You do not have to vaccinate people there against typhoid. The sanitation of those cities is such that they do not have typhoid fever, and that is the real way, the permanent way, to prevent typhoid fever. I am familiar with the State of North Carolina, and I want to say that the campaigns that were held against hookworm disease have perhaps done more than any one thing to educate the people of our State in ideas of sanitation, and perhaps I should say also has gotten them to assume the attitude that they are not gun-shy of any kind of preventive measures you want to adopt. But intensive community health work must cover the whole county, every disease in the county, every day in the year, and when this is done, and not until then, shall we have intensive community health work.

Dr. William Krauss, Memphis, Tenn.—There is one point we must not overlook in connection with this subject of rural sanitation and the bearing of anti-typhoid vaccination upon it. The first thought that occurs to the average person who has been vaccinated is, what do I care about soil pollution? I am protected, and that is a point we must bear in mind in our work.

Another point is this: the question of soil pollution and water pollution takes in more than typhoid fever. If we do not take them in, one will neutralize the other. We look upon tuberculosis as a respiratory disease or a disease contracted by inhalation. Even so, how is it possible to eliminate tubercle bacilli from the sputum without eliminating them from the feces? It is physically impossible, so then the point is this: it has been shown that where the pollution of the water supply has been inhibited there is not only the elimination of typhoid but a variety of diseases which up to that time had not been considered a saving point, perhaps, by any water pollution, and consequently also in taking in soil pollution we must consider the whole subject.

In my own class work I always emphasize the point that I favor anti-typhoid vaccination as a general proposition, but I would reserve it for the present as an emergency measure, or for camp life, where the ordinary system of sanitation can not be employed. I also emphasize the point that, after all, typhoid fever and other kindred diseases, definitely specified, are diseases that are brought about largely by the people themselves. Make them ashamed of it, and we will get results.

Dr. John A. Ferrell, New York City.—Each piece of work undertaken should contribute toward the development of efficient public health agencies for state and county. Personally, I believe that one definite task at a time effectively performed offers probably the most rapid means for the attainment of this end.

Sentiment for health work has grown very rapidly in some states and counties in the South. For example, you will recall that from 1910 'till 1912 the securing from a county of from $200 to $300 for a dispensary campaign for hookworm disease was quite an accomplishment. Today with comparative ease it is practicable to obtain in some of these counties an appropriation of from $2,500 to $3,000 for the employment of a full-time health officer or for a prolonged campaign devoted to the prevention of soil pollution diseases.

In those counties where full-time health officers have been employed it has not been un-

usual to find them burdened with a multiplicity of duties and without assistance, with the result that striking progress in any particular division of their work has been impossible. In my judgment, it is desirable in employing a full-time county health officer to obtain at the same time provision for supplying him with office and field assistance. A few of the men will gradually get this assistance, but even their work will be found unduly difficult in its early stages. If provided assistance from the beginning, the work may be better organized and show more immediate results. It is hoped that the intensive community health work may demonstrate the wisdom of having a field force to assist the medical director.

At first this work was carried on in a group of three communities by a field director and three assistants, usually for a period of three months. The tendency now is: (1) to increase the area covered so as to reach practically the entire county; (2) to increase the number of assistants for the health officer; and (3) to lengthen the period of time devoted to a single county from six to twelve months.

Some of the advantages of this program are as follows: A full-time health officer selected because of his special qualifications is permitted to devote his entire time to a single health problem. He is assisted by a small group of full-time men whom he selects and trains. The working program is simple and definite and the results obtained are tangible and appeal to the people, who become accustomed to seeing an efficient squad of workers concentrating their efforts on a single task. If the working methods and the results carry an appeal, the people will be prepared to demand that the same principles be followed when other health problems are taken up in the county in some logical order. Once the people know exactly what they want and what it costs, they may be depended upon to provide the necessary funds.

There seem to be several advantages in approaching the development of a county health department in this way: (1) the county is not called upon to commit itself to the creation of a new office until the people have had opportunity to see a full-time health officer at work; (2) when they do commit themselves to a full-time man, they will have a clearer idea of the type of man needed for the position; and (3) in the meantime they will come to realize that he should not be expected to do everything needed unassisted.

Moreover, having seen a force engaged in health work devoting itself to one task at a time, there will be exhibited by them a more patient attitude when some health problems are deferred while others are receiving attention.

This is not, of course, the only way by which effective county health work may be developed. It is one plan, however, which, if given a thorough trial, gives promise of very satisfactory progress.

OUR PROFESSIONAL ALLIES, THE PUBLIC HEALTH NURSES*

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Atlanta, Ga.

The modern physician well realizes the existence of an extraordinary gap between himself and society, just as the modern business man would realize the same thing were he to be deprived of his clerical force or some other part of his business force that links him to his patron. As this is true, I wish to call the agency that will fill the gap or make the missing link: "Our Professional Ally, the Public Health Nurse." Here necessity has been the mother of invention, and we find the nursing of the sick at the hands of trained, well-bred women an institution of modern times.

Time prevents a detailed relation of the primitive history of nursing, but the art of nursing must have been co-existent with the first mother who performed for her little ones all the services which made it possible for them to live and thrive — the maternal cares as old, or even older, than the human race, laid the foundation from which the profession of nursing has developed to its structure of today.

Beginning with the latter part of the seventeenth century and dating up to the middle of the nineteenth century, we find this period called the "dark age" of sick nursing. The idea of training nurses to attend the sick in a special school for the purpose originated with Theodor Fliedner, pastor at Kaiserwerth on the Rhine. In 1833, his wife converted a part of their pastorate into an asylum for the discharged female prisoners and in 1836 founded the first school for deaconesses and this became the model for institutions in Germany and elsewhere. In

*Read in Section on Public Health, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

1840, Elizabeth Fry came to the rescue of the Fliedners. She was famous for the extension of John Howard's work in reforming prisons and later (exact date not found) an English lady of Italian birth, Florence Nightingale, devoted her life to nursing the sick and in reality made it the model institution which it is in all the English-speaking countries of today. After the birth of this thought we find three training schools were established in the year 1873 at Bellevue, New Haven and Massachusetts General Hospital, with the one at Johns Hopkins following in close order.

Miss Nightingale, in "Notes on Hospitals" and "Notes on Nursing," makes statements noted for their simplicity and common sense. She defined nursing as "helping the patient to live." When we digest this broad, common sense statement we all can not help realizing the vastness of it and the fact that a great percentage of the masses are never reached by our present methods and helped to live.

When we turn to the thought of the "Public Health Nurse" I often wonder if we fully comprehend the meaning of the joint words "Public Health." It is a term which includes all knowledge and all measures tending to promote health or to prevent disease. With this definition we at once grasp the meaning of the "Public Health Nurse."

Have we, heretofore, as physicians made ourselves aware of the fact that we are inefficient, non-aggressive and too ready to stop short of accomplishing real good to humanity, or in other words, undermining the cause?

Knowing symptomatology is knowledge gained by careful, accurate study of an existing condition, and should we sit idly by and be content to study the effect of a cause? No, we would be little short of dereliction. Now, a careful, accurate study of the cause of disease calls for the co-operation of other professions. Would it be a little far-fetched to make a statement that we as physicians are filled with petty jealousies that make us too narrow to want some other profession to share the distinction and honor of being a co-worker in such a great cause as preventive medicine or public health work? I am afraid that is true.

Our professional ally, the public health nurse, is a new one in this section of the country, but we shall soon come to depend upon her aid for better work among our own. Some one has said, "In order to understand the 'real trouble' of a patient you, the doctor, must know—

1. Bodily state, the physical condition, diagnosis, prognosis, etc.;
2. Mental state;
3. Bodily environment, work, housing, food, etc.; and
4. Mental environment, influence (good or bad) of family, friends, etc."

Can the physician ascertain these factors in the patient's illness? Yes, but not alone, and properly and scientifically to treat such he must know all these things. Can the average nurse in her casual way get the facts? No, she is trained, but only medically and not sociologically. Therefore, we need the services of an individual with these two things linked together in one person, the social nurse, or the public health nurse.

The essential points in the treatment of disease are two:

1. Careful study of bodily state by the physician and cause of such; and
2. A sympathetic (note the word) study of the individual patient in his home.

In our modern times we are drifting more to specialization and rightly so, for no ophthalmologist attempts to remove an ovary or appendix. Public health nursing is a field for specialization, for there are problems confronting the medical profession today that truly demand a specialist in public health nursing.

We have only recently discovered that pellagra is probably a disease of nutrition and environment, and we have known for some time that tuberculosis is a disease of nutrition, housing conditions and home life; that the treatment of such diseases as diabetes is almost wholly a dietetic one, and we as leaders of public health and hygiene must bestir ourselves and bring about a solution of this great problem.

The crying need, therefore, is for the physician to demand a trained worker, the public health nurse, to see that his

diabetic case gets the proper diet after leaving the hospital; or to see that his tuberculous case is making the very best of his environment. So truly speaking, preventive medicine simmered down to a practical point comes to the problem of the home.

We will admit that the hospital is the centre from which emanates the educational work of preventive medicine, but the difficulty arising is that the education does not continue after the patient leaves the hospital. Hence, the necessity for a follow-up system for these cases. What are the results of our present system? Many, but a few are as follows:

A case of an infant, has an illeo-colitis in summer as a result of improperly prepared food, etc.; sent to a hospital; cured from the viewpoint of the hospital; but the cause, the ignorance or carelessness of the mother, has not been corrected and the baby returns shortly with a recurrence.

A case of diabetes in, we will say, a non-American patient, remains in the hospital 'till the sugar disappears from the urine. He is given a diet list, a few instructions as to the mode of living, etc., but his racial customs have not been studied and he soon returns. Therefore, we ought to know what they can be induced to eat under ordinary conditions before we can do anything intelligently with the problems of diet in disease. This is a home problem and deals with social investigation.

Many such instances could be related, but we shall offer some suggestions as to the remedy:

1. Prove conclusively by statistics and other means that this question of medico-social investigation involves economics, showing the actual value of dollars and cents.

2. Demand the workers, as they are an essential part of your treatment of disease. When this is done you create interest, first, among ourselves as physicians; second, among those who support, endow and in other ways maintain our hospitals, clinics, boards of health, etc.

Go further and study some other conditions demanding public health nurses. For instance, the school inspections by medical officers is worthless unless we have nurses for the follow-up work.

The results obtained from reporting infectious and contagious diseases would be far better if we had public health nurses for home teaching, home care and general follow-up work. But some one says you can't have your nurse for each special line of work. No, I will admit that it is not practical in all communities and sections, but in the larger cities it can be done. There you can have your school nurses, tuberculosis nurses, infant welfare nurses, etc., but in rural districts the full-time health officers need the services of a competent nurse having a working knowledge of all these various lines of work.

By the allied and co-operative work of public health nurse and doctor the following may be called a summary of results obtained:

1. Promotion of health and prevention of disease;
2. Humanity as a whole is bettered;
3. The doctor is a better one;
4. The patient gets the best results;
5. Life is prolonged and the actual earning capacity of every member of society is increased;
6. The hospitals' burdens are lessened by preventing relapses, recurrences, etc.; and
7. Better vital statistics may be obtained.

THE FENCE OR THE AMBULANCE

'Twas a dangerous cliff, as they freely confessed,
Though to walk near its crest was so pleasant,
But over its terrible edge there had slipped
A duke and full many a peasant.
So the people said something would have to be done,
But their projects did not at all tally;
Some said, "Put a fence 'round the edge of the cliff,"
Some, "An ambulance down in the valley."

But the cry for the ambulance carried the day,
For it spread through the neighboring city;
A fence may be useful or not, it is true,
But each heart was brimful of pity
For those who slipped over that dangerous cliff;
And the dwellers in highways and valley
Gave pound and gave pence, not to put up a fence,
But an ambulance down in the valley.

"For the cliff is all right if you're careful," they said,
"And if folks even slip or are dropping

It isn't the slipping that hurts them so much
As the shock down below when they're stopping."
Then an old sage remarked, "It's a marvel to me
That people give far more attention
To repairing results than to stopping the cause,
When they'd much better aim at prevention."

"Let us stop at its source all this mischief," cried he.
"Come, neighbors and friends, let us rally,
If the cliff we will fence we might almost dispense
With the ambulance down in the valley."
"Oh, he's a fanatic," the others rejoined.
"Dispense with the ambulance? Never.
He'd dispense with all charities, too, if he could;
But no. We'll protect them forever.
Aren't we picking up folks just as fast as they fall?
And shall this man dictate to us? Shall he?
Why should people of sense stop to put up a fence
While their ambulance works in the valley?"

But a sensible few, who are practical, too,
Will not bear with such nonsense much longer;
They believe that prevention is better than cure
And their party will soon be the stronger.
Encourage them, then, with your purse, voice and pen,
And (while other philanthopists dally)
They will scorn all pretense and put up a stout fence
On the cliff that hangs over the valley.
—DOCTOR.

In closing, let me ask the hearty co-operation of every one present in promoting interest in this movement of medico-social reform and public health nursing, and in a few years we may predict phenomenal success.

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DISCUSSION

Dr. L. B. McBrayer, Sanatorium, N. C.—I don't think we have any agency of greater importance in public health work than the public health nurse. I don't think by great odds we have nurses that are competent to do this work, to fill the needs of the future, nor even to supply the present demands. A nurse who has taken three years' training in a good hospital isn't prepared to do public health nursing, because she hasn't had the sociological experience, and it is therefore necessary for the nurses to take additional training before they are ready to take up this work, or even the school inspection work. And then, too, I have learned since I have been here, and I had a general intimation before coming here, that there is some danger of making physicians out of the public health nurses. I have understood that in some quarters the nurses were doing the school inspection. Well, there has always been a tendency for nurses, especially after they have graduated,—for some nurses, I mean,—to get an idea that they know more than the physicians. I have seen that a few times in my life, and notwithstanding the nurses had the proper training along that line before graduation. But in this instance it doesn't seem to be the nurses at all that are asking for this, but we health workers are wanting to place nurses into the office of school inspector, the school inspector for the eradication of diseases. It seems to me that this is going a step too far. We should put them out to do things that the physician can't do and is not going to do and doesn't want to do; and we ought to let them do those things and let the doctors go on and do the school inspection.

We have in North Carolina at this time a few scholarships for nurses who desire to take this post-graduate course in public health nursing, and we are needing a great many more nurses in that State than we are able to find—that is, nurses who have had proper training for doing this. It is a most important phase of public health work, and I think this Section and public health workers in general should give it more attention than we have done in the past.

AUTHORS' ABSTRACTS

Medicine

(Continued from page 721)

Benzol in the Treatment of Leucemia. Harris Weinstein, New York, N. Y. New York Medical Journal, Vol. CV., No. 7, February 17, 1917, p. 299.

The blood picture in leucemia is determined by the entrance into the circulation of many ripe and unripe leucocytes brought about by a hyperplasia of the blood-forming tissues. Treatment of this disease was unsatisfactory until Roentgenotheraphy was introduced, reduction of the leucocytes being brought about by the destructive effect of the X-rays upon the cells. Readjustment to this destruction follows prolonged irradiation. After a period of rapid destruction of the young and maternal cells a reaction takes place, in which cells of a more resistant type are formed, thus leaving the leucemic process unchecked. Hence the X-ray is but a palliative measure in leucemia. Benzol acts more slowly than the X-ray, but a combination of both agencies in the treatment of leucemia has proven effective. We must guard against constitutional symptoms, particularly headache, kidney or bladder irritability, or anemia. The drug should also be discontinued when a reduction of the leucocytes to 20,000 per c. mm. has been accomplished. He concluded that benzol in small doses, 15 to 30 minims per day, acts slowly on the leucocytic tissues and the spleen. The Roentgen ray produces a rapid change in the white cells, an improvement in the red cells and a rapid diminution in the size of the spleen. The effect of the combined treatment should be checked up by frequent blood examinations.

SURGERY, GYNECOLOGY, OBSTETRICS AND GENITO-URINARY DISEASES

GUNSHOT INJURIES OF THE SPINAL CORD, WITH REPORT OF TWO CASES*

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Of the many conditions which excite the pity of the surgeon, there is none that presents a spectacle more to be deplored than that class, doomed to a life of uselessness, of partial or complete invalidism by injuries that have disorganized or encrouched upon the spinal cord. Surgery demonstrates anew its pre-eminent right of existence when, by the application of its precepts, we are enabled occasionally to change the aspect of one of these unfortunate victims.

In civil practice, injuries of the spinal cord are frequently seen, produced by gunshot wounds. The symptoms following such an injury furnish the key to treatment. A certain school of surgeons advise and practice exposure of the cord over the seat of injury in all cases, holding that the real extent of injury to the cord can only be determined by exploration and that no harm is done by this procedure. A more conservative view, adopted at present as the exercise of better surgical judgment, favors waiting in cases of suspected, severe cord injury to determine whether or not the cord is completely divided. Regeneration of nerve tissue in the cord, after complete division, is a mooted question. It would seem to be proven that regeneration is only possible when the divided nerve is surrounded by the neucleated sheath or Schwann. Notwithstanding, a few reported cases of suture of completely divided cords, with partial restoration of function, would seem to justify further clinical test. At any rate, the present teaching and accepted practice favors operative procedure in all cases where, by clinical signs or by the use of the X-ray, there are evidences of pressure exerted upon the cord.

In gunshot injuries, fragments of vertebra are frequently driven against or into the cord, and in many cases the bullet itself is buried within the cord substance.

The brilliant results obtained by laminectomy in relieving paralysis and anesthesia, in cases where the cord's function has only been disturbed by pressure, has firmly established this procedure in the minds of all enlightened medical men. If, in a given case of gunshot injury to the cord, there is sudden and complete paralysis of motor and sensory nerves below the segment of cord involved in the injury, the expectant plan of treatment should be followed. Complete severance of the cord is likely. Gradual improvement in such a case might justify operation later. X-ray examination should be practiced in all cases and where evidences of pressure are manifest by the presence of a buried bullet or a dislocated bone fragment, operation would not only be advisable but imperative.

In cases where paralysis gradually comes on following the injury or where paralysis is confined to nerves of motion and there is simply anesthesia of sensory nerves, the pathology likely to be associated in such injuries will be found to be pressure exerted upon the cord by bone fragments, the local presence of the bullet or the formation of blood clots. It should be urged upon the profession that operative delay in this class of cases is most disastrous. Prolonged pressure causes atrophy of cord substance with an end-result as hopeless as that seen in complete severance. It is in this class of cases where surgery comes into brilliant play and touches, as if by the hand of magic, an apparently hopeless case into the optimism of restored health.

All gunshot injuries, therefore, that may be suspected of having involved the spinal column demand our thoughtful attention lest we overlook an opportunity to bring such individuals under the scrutinizing eye of present day diagnostic meth-

*Read before the Fulton County (Georgia) Medical Society, Atlanta, 1917.

Laminectomy Case II. The transverse processes and laminæ have been removed and the cord, lacerated and edematous, is exposed. The dura has not been opened.

ods which continue to bring order out of chaos.

The following case reports, taken from my records, illustrate the two classes of cases into which all gunshot cord injuries may be simply divided. First, cases in which cord function is suspended by pressure; that is, bone, bullet or edema from contusion, or partially destroyed by severance of its nerve bundles; and secondly, cases in which the cord is either completely cut across or otherwise totally disorganized by some rare bullet injury such as I bring to your attention in this report.

CASE REPORTS

Case I.—White, male, age 28, injured by having been shot as he ran away from an officer, resisting arrest. A large buckshot entered his back two inches to the left of the second lumbar vertebra, causing the fleeing prisoner immediately to fall. He was unable to get up and complained of inability to use his legs. On examination nothing but a small wound of entrance was noted about the seat of injury. The spinal column apparently was not disturbed. The patient could not move either leg, but had slight sensation in both, more marked in the right leg. Reflexes lost in the tendon of the quadriceps extensor and very weak in the cremaster muscles. Marked anesthesia of the skin below the level of the third lumbar vertebra. Bowels and bladder functions lost, soon becoming involuntary. After some three weeks of detention in prison, during which time all these symptoms had become exaggerated, the patient was sent into the hospital for treatment. There was now complete paralysis of motion and only slight sensation of both lower extremities, complaint of agonizing, boring pain down the course of the sciatic nerves in both legs, marked decubitus, involuntary stools, dribbling urine, and septic fever. The wound in his back had healed. X-ray examination showed bullet apparently located in the spinal canal on the level with the first lumbar vertebra. Operation was urged. Laminectomy was performed, the spinous processes and lamina of the twelfth thoracic, first and second lumbar vertebrae being resected. The spinal cord was observed to be very edematous, filling the canal snugly. On opening its membranes a large quantity of serum gushed out as if under pressure. Palpating the cord, the bullet was felt buried in the cord substance. A longitudinal opening into the cord was made by blunt dissection and the bullet removed. It proved to be a large buckshot. The cord was constricted at the seat of the bullet and many of its fibres evidently cut by the entrance of the

Laminectomy Case II. The lacerated dura has been opened and drawn aside to expose the disorganized cord. The bullet is seen imbedded in the cord substance between the second and third cervical vertebra.

shot. The bony canal was intact, the bullet having entered through the lamina of the second lumbar vertebra, making a small opening without shoving fragments of bone into or against the cord. The membranes of the cord sutured, leaving a small drain, owing to the marked œdema present, and the soft parts were closed over the rent in the spinal column. Patient was put to bed without any spinal fixation apparatus and was treated afterward as in any ordinary operation not involving the spinal column. Four weeks later the patient was dismissed, the wound healed, function of bowels and bladder completely restored, sensation and motion in right leg approaching normal, and marked improvement in sensory and motor power of left leg, although it could not be lifted from the bed. There was still aggravating pain down the course of the sciatic nerve, especially at night, requiring morphia. A report from him three months later stated that he was walking about his farm with one crutch and was comfortable. A gradual but slow improvement in left leg. A recent report, now more than twelve months since operation, states that he is still on one crutch, but otherwise well. Still unable to use left leg.

Skiagram of Case I, showing bullet lying in the spinal canal on level with the first lumbar vertebra.

The assumption seems justified that this was a case in which the majority of the symptoms resulted from pressure exerted by the buried bullet and intensified by edema of the cord and its membranes. Persistance of paralysis in the left leg would also indicate that certain nerve fibres in the cord were severed.

Case II.—White, male, age 26, injured by having been shot by a large calibre pistol as he rode away from a house at which he had been engaged in an altercation. Patient immediately lost all power to hold his body erect and fell over into the bottom of an automobile in which he was riding. When brought to the hospital for examination it was learned that immediately following the injury there had been complete loss of motion and sensation in both upper and lower extremities. There was absence of pain. The mental faculties and special senses were not disturbed. Examination showed a wound of entrance two inches to the right of, and on a level with, the second thoracic vertebra. There was no evidence of the bullet's having produced injury to the lung tissue. No wound of exit was found. Complete motor paralysis was noted from the junction of the head and neck downward and a complete sensory

Skiagram of Case II, showing bullet lying in the spinal canal between the second and third cervical vertebrae. This bullet entered the canal at the second thoracic vertebrae.

paralysis from the level of the armpits downward. Not a muscle of the body could be moved except those rotating the head. An X-ray picture was secured, showing the section of the spinal column on a level with the wound of entrance. This picture showed particles of lead deposited in the course of the bullet which was thus proven to be slightly upward, entering the spinal canal between the first and second thoracic vertebrae. The bullet was not found in this picture. Remembering that the motor nerves supplying the upper extremities come out from the cord in the cervical region, and that in the case under investigation there was paralysis of these nerves, a second picture was made showing the cervical vertebrae and the bullet apparently imbedded in the cord substance between the first and second cervical vertebrae. It was then evident that the bullet, having entered the canal about the second thoracic vertebra, had been deflected up the spinal canal and had destroyed the cord on its way. I present the X-ray picture and section of the cord which speak for themselves.

Operative interference was not considered in this case. Death resulted on the fourth day. Laminectomy done at post-mortem found the bullet lying within the membranes of the cord between the first and second cervical vertebrae. The cord had been completely destroyed throughout the bullet's course in the spinal canal.

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CHOLECYSTITIS WITH AND WITHOUT GALL-STONES, WITH A CLASSIFICATION OF SYMPTOMS*

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This study is based upon 30 personal cases. The following facts are deduced by analysis of the group.

SEX

There were 19 females and 11 males, or approximately two-thirds women and one-third men. The average age was forty-one years. The oldest patient was seventy years; the youngest in this series was twenty-nine. I have operated upon a girl, aged sixteen years, but her case is not included in this report. The cases with reference to decades are divided as follows:

20 to 30, 6 cases, or about 20 per cent.
30 to 40, 13 cases, or about 40 per cent.
40 to 50, 6 cases, or about 20 per cent.
50 to 60, 2 cases, or about 7 per cent.
60 to 70, 3 cases, or about 10 per cent.

Stones were present in 18 cases, or 60 %.

History of "stomach trouble" existed in 25 cases, or 83 plus per cent.

The average time from earliest symptom to the date of operation was ten years. The longest period was twenty-nine years; the shortest was two days. Nine cases, or 30 %, were jaundiced at some period in the history of the complaint. The jaundice occurred in 1 case in which no stones were found. Stones were found accidentally in 2 cases during the process of an operation for other trouble, and were unsuspected before the operation. One was a fibroid of the uterus and 1 acute appendicitis. There were 3 deaths, one in which the patient vomited incessantly from the moment she came out of the anesthetic until she died forty-eight hours later. This case was operated upon in a hospital in a neighboring city. I did not see her again after the operation. It was quite a difficult case, in which a contracted dry gall-bladder filled with stones had to be resurrected from a mass of adhesions deeply situated beneath the liver. The second case is herewith reported in detail. Death took place eight weeks after operation for rupture of the gall-bladder. Case 3, I think, died as result of a defect in drainage.

History of typical colic occurred in 22 cases, or 73 plus per cent. In 5 there was typical colic, but no stones. Two cholecystectomies were performed, one primary and one secondary. The latter case was not relieved by cholecystostomy and removal of sixty stones, with drainage, but upon her return home she continued to have periodic colic attacks as severe and as frequently as before the operation. She came back to the hospital in six months and cholecystectomy was performed; no stones were found at the second operation, but complete relief of symptoms ensued. One other patient from whom a single stone was removed complained of "stomach trouble" after the operation. So far as morbidity is concerned no other cases have returned to me with a complaint. This fact is far from proving that all my cases were utterly relieved for two reasons: one is that many patients will endure much suffering rather than risk the ordeal of a second operation. When the first operation fails to relieve, patients rarely return to the surgeon who failed of relief in the first instance. It is but natural they should seek other counsel.

The longest period in the hospital of the present series was four weeks; the shortest was two weeks. The average for twelve cases was three weeks.

SYMPTOMS—"STOMACH TROUBLE"

1. A review of the symptoms shows that "stomach trouble" is the most constant, occurring in 83 plus per cent. of the cases. It appears, therefore, that "stomach trouble" is almost synonymous with gall-stone disease. I think that on account of its prominence, as well as permanence, it deserves special consideration. I shall, however, confine myself to the clinical rather than to the laboratory phase, and in doing so I hope I do not convey the impression of a tendency on my part to over-estimate the importance of the clinical side or under-estimate the value of laboratory methods. Both arms of the service are indispensable to the requirements of diagnosis, and whoever slights the one or shows spe-

*Read before the Southern Surgical and Gynecological Association, December, 1916.

cial favoritism for the other is sure to fall into serious error if not complete disgrace.

2. For those of us who work in a relatively isolated way the clinical symptomatology holds a more vital interest than it does for those connected with large cooperative organizations in which the segregation of labor goes a great way in the solution of the complex problems of diagnosis. Clinical symptoms make a strong appeal to the individual worker, because by their aid he may be able to classify his cases into those who do and those who do not require laboratory investigation. It is wholly impractical to make routine laboratory examinations of the stomach of every patient who applies to a one-man clinic.

3. The careful study of the clinical phases of disease always reveals certain fundamental principles of diagnosis. The objective phenomena observed upon the patient himself, his own recital of subjective symptoms, his own narrative of the history of his complaint, and the irresistible element of personality which is thereby injected into the sketch make a combination upon which all further investigation may be based.

4. In numerical strength, so-called dyspepsia heads the list of human complaints. Nine out of every ten patients who enter a doctor's office either have or think they have what is vaguely denominated by them "stomach trouble." Yet, paradoxical as it may seem, about one in every ten people who think they have "stomach trouble" actually have a gastric disturbance; and though it may sound whimsical, it is none the less true that it is more difficult to cure the delusions of those who think they have "stomach trouble" than it is to cure the lesion of those who actually have it.

5. That indefinite (and I might say that infinite—I am tempted to go a step farther and say that infamous) diagnostic masquerader, "indigestion," is a term used by the laity for expressing a variety of ailments ranging from pregnancy to locomotor ataxia. When a patient enters a doctor's office and complains of indigestion he lays upon his consultant the task of discovering whether he is afflicted with gall-bladder disease, pancreatitis, appendicitis, cirrhosis of the liver, renal calculus, hemorrhoids, meningitis, pulmonary tuberculosis, error of refraction, Potts' disease, or a host of other maladies which it would be both tedious and tiresome to enumerate.

There is also some diagnostic weight to the fact that, excepting the spleen and the malady of cancer, the stomach is the seat of primary pathological change less frequently than any other organ inside the abdominal cavity. We have discovered by clinical experience and by the modern methods of precision in diagnosis that diseases of the stomach are much fewer in number than was formerly supposed, excluding alcoholic and accidental corrosive gastritis. The only lesions occurring in the stomach with sufficient frequency to be of practical importance are ulcers and their sequelæ and cancer.

Typical colic occurred in 22 of my cases, or 73 plus per cent., and ranks next in importance to "stomach trouble" as a symptom, but its positive value is depreciated by the fact that there were 5 cases in which it existed and no stones were present, and 2 cases in which stones were present but unsuspected, the abdomen having been opened for other conditions.

Gall-stone colic is often classed as "acute indigestion" by patients and physicians. Cases of colic in this group may have unwittingly fallen under the head of "stomach trouble."

A report is made of the following cases because they present certain features of interest and illustrate certain phases of the disease.

CASES WITHOUT PREVIOUS HISTORY

Case 1.—Mr. G., aged fifty years, had typhoid fever twelve years ago. Had not been sick since then. He was suddenly seized in the middle of the night with agonizing pain in the epigastrium. He called a doctor, who gave him morphin and kept him narcotized three days. I saw him at that time and operated for gall-stones. The gall-bladder was found enveloped in omentum and mesocolon. It was black in spots and showed signs of impending perforation. The enveloping fold of omentum was gangrenous in most of its extent, as were certain areas of the mesocolon in contact with the gall-bladder. The gangrenous omentum was amputated. The gall-bladder was opened; it was much enlarged and under tension. It was filled with pus. No stones were found, but extended search was not made on account of the patient's condition. The mucous and muscular coats of the gall-bladder were almost ready to slough. They lay in separate layers from each other and also from the serous coat. Drainage was instituted. The drain tube came out on the

twelfth day after operation. When the tube was removed a large stone appeared in the wound. After three attempts made on separate days to crush and remove the stone it was finally extracted under ether and found to be only one large stone.

Case 2.—Mrs. M., aged fifty years, was suddenly seized with pain in the abdomen without premonitory symptoms. Operation two days after onset. The gall-bladder was highly inflamed and contained a single stone, which was remarkable for its size, its symmetry, and clear crystal formation.

These two cases are of interest because there was no previous history of indigestion nor pain, and there was a single stone of large size in each which had remained certainly a number of years without trouble.

EFFECTS OF LONG PERIOD OF GALL-STONE DISEASE

Two cases are herewith cited to illustrate this phase:

Case 3.—W. E. S., farmer, aged forty-seven years. Present attack occurred two days prior to the operation and followed a heavy meal. He had been having at frequent but irregular intervals attacks of gall-stone colic covering a period of twenty-five years. The attack had grown more frequent in recent years. He suffered during all that time with indigestion and sour stomach; could not eat tomatoes and often regurgitated his food. Had typhoid fever two years ago and was in bed three months. At operation the gall-bladder was distended to its utmost; one spot the size of a dime seemed about to slough out. The gall-bladder was filled with stones the size of garden peas, about sixty in number.

Case 4.—Mrs. B., aged sixty-one years. Had been suffering with gall-stone attack during a period of twenty-nine years. She was severely jaundiced at the time of operation. The gall-bladder was small and contracted and contained about a half dozen stones. Cholecystectomy was done. The gall-bladder was found to have sloughed where it lay in contact with the liver, and the stones nestled in a cavity in the liver structure covered by the remains of the gall-bladder. In dividing the cystic duct to remove the gall-bladder the hepatic duct was also divided. I anatomosed its proximal end with the distal end of the cystic and ligated the distal end. I protected the anastomosis with a rubber fish-tail tube drain, securing it in place with No. 00 catgut. The patient made a satisfactory recovery, the drainage ceasing in about four weeks.

CASE IN WHICH ULCER SYMPTOMS SEEM TO PREDOMINATE

Case 5.—Mrs. W. E. S., aged thirty-eight years, married; one child stillbirth at term eleven years ago, from which time she dates her present trouble. She began with "bilious spells," nausea, and vomiting of bile. Sometimes the attacks were accompanied by cramps below the umbilicus. Every menstrual period was associated with a "bilious spell" and cramping. Eight years ago she consulted a celebrated internist, who diagnosed ulcer of the stomach and placed her upon rectal alimentation for fifteen days. She improved some, but continued to have the "bilious spells" at each menstrual period. Had backache most of the time. Had never regurgitated, but the presence of food always caused distress, which was worse at periods varying from one-half hour to three hours after food ingestion. She was addicted to the use of the stomach tube, and practiced autolavage whenever she felt the discomfort of food, which gave temporary relief. Occasionally when the attacks were very severe she resorted to morphin hypodermically. She had typhoid fever at twenty years of age. The abdomen was soft, but very tender over the left ovary and gall-bladder region. Vaginal examination showed the uterus tender and fixed, and a mass in the cul-de-suc. The cervix was badly lacerated. Gastric analysis showed no abnormality; urine normal; leucocyte-count, 75,000. At operation the abdomen was opened below the umbilicus and a serosanguinolent cyst of the left ovary was removed. The appendix looked a little "sick" and was removed. The gall-bladder was palpated and found to contain one stone about the size of the last joint of the little finger. Another incision was made over the gall-bladder and the stone removed. The stomach and duodenum were examined with great care and found free from ulcer and ulcer scar. She had a good convalescence, and at last account was well except for a little "indigestion" now and then and the complaint of being very "nervous."

This case shows how one can fall into error by following the lead of "stomach trouble." Her husband told me he had kept books on his wife's illness, and that during the eleven years had spent $3,000 in treatment for a disease which she did not have.

ONE FREAK CASE

Case 6.—J. E. K., aged twenty-six years; sorter in laundry. He went to work as usual on Monday morning. While at work he was suddenly seized with pain in the region of the gall-bladder and went home and sent for his doctor. Two days later he was admitted to St. Anthony's Hospital. His pain was excruciating; pulse, 120; temperature, 101.6°. A tumor was perceptible in the gall-bladder region. Incision showed the gall-bladder very black and distended; when opened it was found filled with blood clot. There were no stones present. He made a smooth convalescence and left the Hospital in three weeks. He died one year later from nephritis. No examination of the urine was made while he was in the Hospital, because he came in as an emergency and was operated upon within two hours after admission. The convalescence was so smooth that no suspicions were aroused regarding the kidneys.

RUPTURE OF THE GALL-BLADDER

Case 7.—Mrs. D., aged fifty years; mother of two grown children. She had had numerous attacks of gall-bladder colic over a period of two years. I was called to see her in quite a number. She steadfastly refused to consider operation. In the early part of November I saw her at 5 A. M. in what appeared her most severe attack. The pain was great and evidence of profound shock was apparent. Soon the signs of peritonitis became conspicuous. Her abdomen became distended. Vomiting set in and the pulse went to 160. The focus of her trouble was defined by a mass in the right side, where the gall-bladder is usually found. There was a gradual decline in the severity of symptoms from day to day until on Christmas day, seven weeks after the inception of the attack, she was able to sit up. The mass in her side was still discernible as plainly as before. The temperature by this time was ranging from 99.25° A. M. to 101° P. M. She slowly gained strength and appetite and lost the pain, but the temperature kept up. During the third or fourth week of her illness she evacuted large quantities of pus and decomposed blood from her bowels.

She was operated upon February 28, 1913. An incision was made as for opening the gall-bladder, and through the opening the search was made for the gall-bladder. We first encountered a wall of omental plications, which was attached to the parietes along the right side as far down as the upper border of the ilium. This was separated and the search extended beneath until the remnants of the gall-bladder were disclosed. It presented the appearance of a total wreck. The walls were thick and curled inward. I did not attempt to disclose the communication with the bowel, but I presume something of the sort existed or did exist prior to the operation. There was quite a large hemorrhage that followed the exploration. Two drains were carried to the bottom of the cavity and the abdomen closed. Discharge of very offensive thin pus and bile began the next day, and on the third day expectoration of pus began and lasted only one day and night. The discharges gave almost a pure culture of colon bacilli. She returned to her home four weeks after operation, but the discharge never entirely ceased, and she succumbed four weeks later with symptoms of systemic sepsis.

STREPTOCOCCUS SEPTICEMIA WITH METASTATIC INFECTION IN ONE EYE

By Cecil W. Vest, M.D.,
Baltimore, Md.

Septicemia,—a condition in which pyogenic organisms are present in the blood stream,—is not a rare occurrence. It is always dangerous, not only because it may rapidly prove fatal, but because the various possible sequelæ may later lead to the death of the patient or to a prolonged and sometimes permanent invalidism. Hence such cases must necessarily excite the acute interest of those working in every branch of medicine. Such an infection, formerly a plague in lying-in hospitals, in a puerperal woman must always be regarded as a tragedy, and since the time of Semmelweis and of Holmes intelligent and earnest efforts have been made to keep the number of these cases at the minimum.

The feature of chief importance in the present case is the fact that an eye was the seat of metastatic infection. That this is a rarity is proved by the literature; and Dr. James Bordley, Jr., who operated upon our patient, tells me that he has encountered only one other similar case in his own practice, the patient dying of a brain abscess six weeks after enucleation of the eye-ball.

From personal observation of a series of some twenty cases of septicemia, the following data seem worthy of note:

1. The streptococcus was the most frequent etiological factor seen in these cases, but the patients seemed able to overcome this better than any other infective organism.

2. The heart valves were seldom implicated in the streptococcic infection, whereas endocarditis was relatively common in the septicemias of gonococcic or pneumococcic origin.

3. In streptococcic infection the joints were seldom involved by secondary abscesses, whereas enormous accumulations (500 to 1,000 c. c.) of pus were frequently evacuated from beneath the deep fascia of the trunk or extremities, being most common in the thighs, buttocks, or shoulders.

4. The patients apparently combat the infection just as well, if not better, if kept properly stimulated, nourished and quiet, than if given any of the various sera or vaccines or transfusions of blood. In fact, in no other disease is the nursing more important than in septicemia.

The mental attitude of the patient stands for a great deal and we must never fail to do everything to keep up her courage. With this end in view we have adopted the following plan as a routine measure. Toward the end of the second week a wheel-chair is prepared with pil-

lows and blankets and made horizontal; and the patient is then lifted into it and moved into an adjoining room. Although at first she may wish to be in the chair for only a few minutes, yet this change adds much to her comfort and mental stimulation just at the time when she is becoming low-spirited. In no case have we seen any harm produced by this measure.

CASE REPORT

A brief record of one case follows:

Mrs. S., in the third month of pregnancy, was seen by Dr. F. C. Eldred, Sparrows Point, Md., who diagnosed the condition as one of placenta praevia. The bleeding persisting, the uterus was packed, and apparently the entire contents were aborted. Following the abortion, the patient had fever and chills and the uterine cavity was curetted four days later for retained membranes by Dr. G. L. Hunner, who later asked me to help in the care of the case. On the third day following the curettement there were symptoms of pulmonary embolus, and on the fourth day there was rusty sputum. By the end of a week she was much improved. The temperature, however, then became elevated, varying from 99.5 to 104.6° F. On examination at this time I found the face flushed, the pulse 110, and the respirations 26. The mental condition, however, was clear, and the abdomen was negative.

On pelvic examination a small amount of tenderness and induration was found in the lower right abdominal quadrant. In view of a possible beginning abscess in this area, the cul-de-sac was opened and a small drain placed in the right tubo-ovarian region.

At this time we decided that the patient had a systemic blood infection and the blood culture, taken 24 hours later, showed a hemolytic streptococcus.

On the second day after the puncture operation the temperature went up to 103°; it then dropped to 97.4°, and the patient had a severe chill, the pulse becoming weak and thready (148), and the face cyanosed. The chill lasted for a half hour, following which there was profuse sweating and the temperature went to 104° F.

On the following day,—thirty hours after the first chill,—the patient had a second one, during which the pulse became extremely weak and running in character, so that it could not be counted. The respirations were shallow. The chill lasted thirty minutes, and, on each of the next two days, the patient had a similar chill, making four in all.

On the morning of the day following the first chill, the patient complained of pain in the left eye and the surrounding tissues were swollen. Any light in the room annoyed her. On the following day the blood vessels of the conjunctivæ were injected and the whole area about the left eye was slightly edematous.

Forty-eight hours after the second, the patient had a third chill. At this time during a large part of the day she was restless and very weak. The conjunctivæ of the left eye were markedly edematous. From the onset of the symptoms in the eye, the pupil was kept dilated and cold compresses, together with boric irrigations, were employed. The temperature (axillary) varied from 99 to 104° F., it being impossible, on account of her flighty mental condition, to get the patient to retain the thermometer in the mouth. Doubtless a mouth or rectal temperature would have recorded 106° or over. This condition persisted for five days, after which the temperature gradually became lower. The condition of the left eye, however, did not improve; in fact, by this time the patient was unable to see out of it. She became restless and nervous, but took nourishment fairly well. By the end of a week after the beginning of the eye infection, the edema and injection of the eye-ball had practically subsided. During this time also the general condition had been improving slightly. The temperature varied from 98.6 to 100.6° during the following week, after which there was a recrudescence of the edema and hemorrhagic condition of the conjunctivæ. The general condition in this week had shown marked improvement.

During the third week the temperature gradually fell to normal, and remained there. The eye, however, did not yield to treatment, although it caused no especial pain nor discomfort. As it had become apparent that there was to be no restoration of the sight, Dr. Bordley decided to remove the eye-ball.

At the operation the eye-ball was incised and there was an immediate escape of thick yellowish pus, which bacteriological examination showed to contain a pure culture of a streptococcus. The eye was removed. After the operation the patient continued to improve.

In the week following, she complained of quite severe pain in the left hip, but nothing abnormal was made out. The pelvic examination showed nothing wrong. This pain, especially on walking or standing, was present for the following six weeks, but gradually subsided. Eight months after the infection the patient weighed twenty pounds more than before her illness.

This patient, then, practically moribund for a week or more, overcame a severe blood infection with the help of non-specific therapeutic means and good nursing. Strychnia in doses of 1-60 to 1-30 gr. was given every four or six hours over a period of ten days, additional stimulation being supplied by giving salt solution and coffee by rectum by the drop method for the same period. The importance in these cases of administering large amounts of water by mouth, subcutaneously, or by the rectum, can not be overestimated.

In cases of septicemia in which recovery has taken place, various therapeutic measures have been employed and each one has been heralded as a specific for the infection. In this case, the autogenous vaccine and direct transfusion were considered. Had either or both been em-

ployed, one could not have helped feeling that the specific therapeusis had supplied the direct means of promoting the recovery.

My thanks and appreciation to Dr. Hunner are here most sincerely acknowledged for his kindness in asking me to aid in this case and for the privilege of placing it on record.

The Winona.

AUTHORS' ABSTRACTS

Surgery, Gynecology, Obstetrics and Genito-Urinary Diseases

Intrathoracic Goitre. Frank H. Lahey, Boston, Mass. The Boston Medical and Surgical Journal, Vol. CLXXVI., No. 10, March 8, 1917, p. 341.

Intrathoracic goitres are adenomata or cysts originating in the right or left lower pole or isthmus of the thyroid.

Intrathoracic growth is the path of least resistance for these tumors, being everywhere surrounded by muscles except in this direction. Another factor in the production of intrathoracic goitres is the upward and downward motion of the thyroid gland in deglutition, a bed thus constantly being moulded downward for these low-lying tumors.

The symptoms are a feeling of pressure beneath the sternum on swallowing, a feeling of the mass' ascending and descending on swallowing, huskiness of the voice, dyspnea of more or less degree and intermittent attacks of suffocation.

They are diagnosed by the inability to palpate either of the lower poles of the thyroid, by the X-ray demonstration of a substernal shadow and by substernal dullness.

The treatment is surgical and consists in removing the intrathoracic mass. The difficulty of this depends upon how deep in the thorax the tumor is situated. The author has had one case in which complete splitting of the sternum was necessary, before the upper thoracic aperture could be made large enough to permit the escape of the tumor.

These tumors should be removed in toto because of the profuse oozing which follows attempts at piecemeal removal, and because recurrence occurs if a portion of the adenoma remains behind.

Fat as a Hemostatic in Renal and Prostatic Surgery. Irvin S. Koll, Chicago, Ill. Mississippi Valley Medical Journal, Vol. 24, No. 2, February, 1917, p. 43.

The clinical experience at this time is sufficiently extensive to warrant the conclusion that the method can be considered of practical value.

The fat is preferably obtained from a dog, under strict aseptic precautions. Placed in an air-tight, sterile container, in salt solution, on ice, it can be kept indefinitely. Should it not be possible to obtain it from a dog, the fat can be taken from the patient at the time of operation. There is usually sufficient perirenal fat for the kidney work, but the patients are often not sufficiently adipose to obtain fat enough from the site of the incision in suprapubic prostatectomy.

Following the enucleation of the prostate, the bleeding is checked either by hot water irrigation or tamponing the cavity tightly for a few moments with gauze. The cavity is then well filled with fat, and several interrupted catgut sutures are tied over the edges of the cut mucous membrane of the bladder to hold the fat in place; enough of an opening is left for drainage. The fat will slough out in two or three days after it has served the purpose for which it was intended. The efficacy of this method of hemostasis is indicated by the cessation of the oozing, as noted by the rapid clearing of the urine.

When doing a pyelotomy, the opposite ends of the two sutures are tied over the fat. This makes a perfect closure and requires no further suturing.

Should it be necessary to cut into the cortex of the kidney for the removal of a stone, the cavity thus left is plugged with a piece of fat, another piece is placed over the incision, the sutures are then run through this plug and tied over the other piece.

Lacerations are repaired by using a large piece of fat and including it in the suture. This prevents tearing through the kidney, at the same time it holds the fat in place.

Conservation of Energy in Spinal Anesthesia with Particular Reference to its Value in Weakness of the Cardiac Muscle. R. R. Huggins and B. Z. Cashman, Pittsburg, Pa. The American Journal of Obstetrics and Diseases of Women and Children, Vol. LXXV., No. 471, March, 1917, p. 353.

That surgical procedures, as ordinarily carried out under general anesthesia, are exhausting is very evident in observing the post-operative course of patients who have had major operations. Constipation, gas in the intestines, weakness, nervousness, inability to sleep well, and a tendency to tire readily are the evidences of exhaustion that are experienced by many patients for months after operation. The stimulating action of ether in the first half hour of anesthesia is readily observed in the flushed face, the rapid respirations, the increased pulse rate and the hot, moist skin. The appearance is one of activation. In watching these patients over an hour or two of ether anesthesia, one is impressed by the great expenditure of energy. The later stages of prolonged anesthesia are characterized by lowered temperature, absence of the flushed skin of the early stages, skin drenched with perspiration, shallow respirations, the patient shows the usual evidences of exhaustion, "the picture of an untrained athlete at the end of a race." These patients are tired, and no longer in position to respond to the stimulating action of ether. Many patients present themselves for operation who are not sufficiently supplied with reserve force of energy to stand an hour or two of such activation without serious

results. Patients subjected to spinal anesthesia present the appearance of deep hypnotic sleep, so that after an operation of one or one and a half hours with all bodily activities subnormal and all traumatic impulses blocked, they have expended less energy than under normal conditions. One of the most valuable things about spinal anethesia is the rest that occurs in the heart muscle during its effect. In any form of inhalation anesthesia, especially with ether or nitrous oxide, there is a marked stimulation of the heart. That this results in fatigue after a time is certain, and in our opinion the symptom of so-called shock during or following severe operations is often due to exhaustion of heart muscle, which is primarily caused by the ether drive. During spinal anesthesia, the whole splanchnic area is out of commission, and the greater part of the blood lies in the large veins of the abdomen. There is no necessity for extra work on the part of the heart muscle, consequently it is at rest and it enjoys a more perfect rest than during the deepest sleep. If one desired to secure a perfect rest for the heart muscle, no better way could be devised than to administer spinal anesthesia.

The Direct and Indirect Effect of X-rays on the Thymus Gland and Reproductive Organs of White Rats. Evelyn E. Hewer, London, England. The Journal of Physiology, Vol. 50, No. 7, December 15, 1916, p. 438.

Since both thymus and reproductive organs are sensitive to X-rays, it was thought that irradiation of the one organ might elucidate its relation to the other organ. White rats were used, and either the thymus or reproductive organs, or both thymus and reproductive organs, were irradiated. Histological examination was made after varying intervals.

Results.—Hassall's corpuscles are continually being destroyed and in a state of constant evolution, and are never seen typically in white rats except after exposure to X-rays. Sexual maturity is reached in each sex about 10 weeks after birth; the first litter generally appears 3 weeks later. Irradiation of the thymus does not cause Hassall's corpuscles to appear unless the gonads are also irradiated. It also causes slight degeneration of the male, but not of the female, gonads. Slight irradiations of the *whole young male* animal hastens sexual development; degeneration of the gonads occur with large doses, whether applied to the whole animal, gonads only, or gonads and thymus together, in varying degrees. Irradiation of the *male gonads* causes not only interstitial hyperhophy, but local degenerative changes, which, if all spermatogonia are destroyed, is not followed by regeneration, but also affects the thymus (appearance of Hassall's corpuscles.) The supravenal (excessive vascularisation) and pancreas (hypertrophy of islets). The same effect on these three organs follows irradiation of the *female gonads.* Young ova are more resistant than older ones; the corpara lutea become very vascular; hypertrophy of intestinal tissue is constant and persistent.

Removal of the Gall Bladder. E. Starr Judd, Rochester, Minn. Illinois Medical Journal, Vol. XXXI., No. 3, March, 1917, p. 144.

This paper deals with the observations made following the removal of the gall bladder from experimental animals and a report of ten cases in which cholecystectomy was made more than fifteen years ago. Experiments show that after the gall bladder is removed the increased intraduct pressure produces dilatation of all the extra-hepatic ducts. The intra-hepatic ducts are supported by the liver tissue and therefore do not dilate. The sphincter of Oddi at the ampulla gradually loses its patency and is not able to withstand its normal pressure. This sphincter is one of the chief factors in producing the dilatation of the ducts. The common duct always dilates; the pressure in it is greatly reduced so that there is probably no back pressure in the pancreatic duct; and the patency of the Oddi sphincter is almost if not entirely overcome. This series of ten patients seems to demonstrate that a person can live very comfortably for at least a number of years without a gall bladder.

A Theory as to the Causation of Uterine Fibromyomata, with Some Remarks on Their Prevention and Conservative Treatment. W. A. Briggs, Sacramento, Cal. Endolrinology, Vol. I, No. 2, April, 1917, p. 188.

The ovarian theory of the development of uterine fibroids is suggested by the following facts: Uterine fibroids almost invariably originate during the functional life of the ovaries and generally atrophy during their functional quiescence or death.

Ovarian activity may conceivably promote the growth of uterine fibroids either by its trophic or its fluxionary influence on the uterus. The fluxionary influence is shown by the marked and rapid enlargement of the uterus in the premenstrual period, by the rapid subsidence of this enlargement during and immediately after menstruation and by the menstrual flow or flux itself.

This fluxion or hyperemia is caused by the follicular hormone and is normally arrested by the corpus luteum hormone.

Uterine fibroids are riotous proliferations of normal uterine tissues and inherit their capacity for rapid development and even more rapid involution and depend for their sustenance on the same sources—nerovus, nutritive and hormonic.

To prevent the growth and promote the absorption of uterine fibroids, therefore, we must antagonize or destroy the uterine function of the ovaries either in these organs themselves or in the uterus.

Mammary extract and corpus luteum extract moderate or antagonize the functional activity of the Graafian follicles; radiotherapy inhibits or destroys it; and hydrastis and ergot moderate its fluxionary effect on the uterus.

Proper treatment by these means will prevent most of the invalidism and mortality of fibroid tumors and preserve or restore a considerable period of potential motherhood otherwise sacrificed.

MILITARY, RAILWAY AND EMERGENCY SURGERY

NOTES ON THE PASSAGE OF A WOUNDED MAN FROM THE FRONT LINE TRENCHES TO THE BASE

By T. H. Goodwin, C.M.G., D.S.O., Colonel, Royal Army Medical Corps; Member British Commission to United States; Care Surgeon-General's Office, U.S.A., Washington, D. C.

It may possibly be of interest to review briefly the means by which, in the British Army, a wounded man is transported and cared for during his transit from the trenches to the base.

A glance at the accompanying diagram will show the British organization as regards the collection and evacuation of the wounded.

It will be seen that from front to rear the medical aid posts and units are disposed as follows:

(a) With a battalion,—one medical officer with 16 regimental stretcher bearers. The medical officer establishes a "regimental aid post," usually in a dugout, near battalion headquarters, probably some 300 or 400 yards, or more, behind the front line trenches.

(b) Bearer division of the field ambulance, composed of medical officers, the stretcher bearers and ambulance wagons.

The bearer division establishes and maintains touch with the battalion medical establishments and conveys wounded from the regimental aid posts to the advanced or main dressing stations, which are organized by

(c) The tent division of the field ambulance;

(d) Motor ambulance convoy,—3 medical officers and 50 ambulance cars;

(e) Casualty clearing station;

(f) Ambulance train;

(g) Stationary and general hospital; and

(h) Hospital ships.

For the purpose of illustration, we will suppose that the 20th .....shire battalion is holding the front line trench under a fairly heavy bombardment. Private Smith receives a shrapnel wound in the left shoulder and ceases to take further interest in the operations of the enemy, his main idea now being to have his wound attended to as soon as possible. Accordingly he takes out his "First Aid" packet from the special pocket in his coat where it is always carried and, with a companion, proceeds to undo and apply it. Meanwhile his company officer has telephoned to the "regimental aid post," which is situated close to battalion headquarters, and, within a few minutes, the regimental medical officer arrives accompanied by two stretcher bearers and a stretcher.

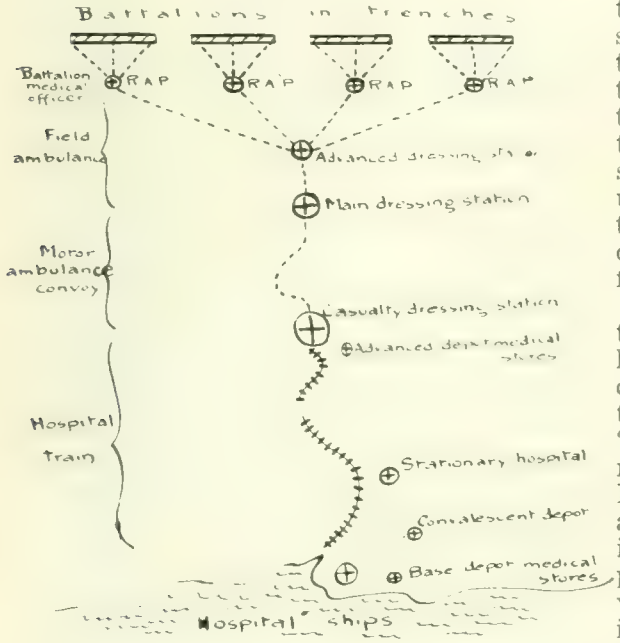
Private Smith is placed on this and carried back to the regimental aid post, which is situated in a dugout. Here his wound is attended to; as the First Aid dressing is found to have been satisfactorily applied, in good position, and there is no hemorrhage from the wound, the dressing is left in place and the man is given some hot soup and made comfortable.

Half an hour later Private Smith, with two companions, is taken down a communication trench to a sheltered point on the road about a mile further back, where a motor ambulance wagon is waiting. The wounded men are placed in the wagon which forthwith takes them to the field ambulance dressing station, which is located about three miles from the firing line, and is situated in a sheltered position behind some rising ground; the wounded are accommodated, some in a partly demolished building, and some in large dugouts.

Private Smith is here further attended to. He receives an injection of 500 units of anti-tetanic serum, the First Aid dressing is removed and the wound irrigated and dressed. Particulars are entered up in the "Admission and Discharge" book. He also receives a good hot meal and is then despatched, with three others whose

wounds are of such a nature as to render their transference to a base hospital necessary, to the casualty clearing station, which is situated partly in a building and partly in huts, close to a railway station some five miles further back. He is transported from the dressing station to the casualty clearing station in one of the cars of the "motor ambulance convoy," each convoy comprising fifty cars.

Arrived at the casualty clearing station, Private Smith is X-rayed, and it is found that there is no fracture of bone, but that a shrapnel bullet is lodged in the muscles of the shoulder. He is taken to the operating room, anesthetized and operated upon.



The shrapnel bullet is removed, the edges of the wound are excised, counter openings are provided, drainage tubes inserted and an ample dressing applied.

Private Smith is then placed in bed in a ward which is under the care of a nursing sister* and cared for, nursed, and fed. He is noted by the medical officer as a case for transfer to the base on the next hospital train, which is timed to leave the station in five hours' time. On the train he is looked after by sisters and nursing orderlies of the Royal Army Medical Corps.

After a journey of some ten hours the train arrives at a "base" in France.

Private Smith, with some three hundred other patients, is unloaded from the train, placed in a motor ambulance car and conveyed to a general hospital of 1,400 beds, which is situated in a large building—formerly a "Casino"—some three-quarters of a mile distant from the station.

He arrives at the general hospital about eighteen hours after having received his wound. He is placed in bed in a large surgical ward, his general condition is good, temperature normal, and wound comfortable, and he has had a meal on the train, so he is left in peace for some six hours, which time he takes full advantage of by sleeping soundly. He is then taken to the operating room, anesthetized, the wound thoroughly irrigated, drainage tubes removed and "Carrel's tubes" inserted. He receives another dose of 500 units of anti-tetanic serum, and is then taken back to his ward and Carrel's method continued with, the apparatus being fixed to the head of each bed.

In very many cases—and probably in the case in question—this method will have been commenced at the casualty clearing station and continued while on the train. The officer in charge of the "surgical division" of the hospital comes round the wards during the morning, sees Private Smith, reads the notes which have accompanied him from the casualty clearing station, which have been further amplified by the surgeon in charge of the ward, and decides that, taking everything into consideration, Private Smith will be unfit for duty for many weeks to come. He accordingly marks him for "Hospital Ship" and Private Smith, in his own words, has now got his "ticket for Blighty," the shores of which he can see from the window of his ward.

Next morning he is conveyed to the port of embarkation, about a mile distant, in a motor ambulance, loaded on a hospital ship and transferred, notes on his case and X-ray photographs accompanying him, to England, where he is admitted to a general hospital, and comes under the supervision of the orthopedic surgeon. As the shoulder muscles having been badly torn and

*"Nursing sister" is an English term synonymous with our "trained nurse," and does not refer to a member of a religious order.—Editor.

damaged, considerable care as regards position of the limb, etc., will be necessary and subsequent exercises and movements will have to be carried out in order to obtain a functionally useful limb.

The above brief survey is intended to give a general outline of the procedure carried out in the majority of cases, but of course it is not by any means intended to represent any hard and fast rule. Had the wound been a slight one Private Smith would probably have been detained at the casualty clearing station for a few days and then transferred to a "rest station" for convalescence pending his return to duty.

Again, on his arrival at the base hospital, if it were considered that he would be fit for "convalescent camp" within a reasonable time, he would be kept in hospital and treated until his wound had healed; he would then be transferred to a convalescent camp in the neighborhood, where he would be kept and given graduated exercises and marches until fully recovered, when he would be sent back to the front for duty.

On the other hand, if his wound had been of a very severe nature, he would have been kept at the casualty station until his condition rendered transfer to the base by hospital train free from risk. Had the wound been one of the abdomen, he would have been taken by motor ambulance car, as expeditiously as possible, to the casualty clearing station 'specially detailed to deal with such cases, in order that early laparotomy might be undertaken with a reasonable prospect of success.

The procedure as regards evacuation of wounded must necessarily vary, not only in accordance with the nature of the wound of each individual, but also with the military exigencies of the time being and the operations actually in progress or in contemplation.

For instance, if active military operations, such as an attack, are in prospect it will manifestly be advisable to keep the casualty clearing stations as empty as possible in view of a probable inrush of wounded in the near future, while, during a comparatively "quiet" period, many cases which would otherwise be transferred to the base may be detained and treated in the casualty clearing station.

The organization in the Medical Service of the United States Army closely approximates that in the British Service. The "bearer company" corresponds to the "field ambulance bearer division" and the "field hospital" to the "field ambulance tent division," while the "evacuation hospital" approximates, in organization and functions, the "casualty clearing station" in the British Service.

The above brief sketch has been written in the hope that it may possibly be of utility or interest to the many medical men in the United States who are now entering upon a military career.

MEDICAL PREPAREDNESS IN THE GREAT DRIVE FOR DEMOCRACY

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These remarks are based upon my own observations.

These observations represent an intensive study since August, 1914. The study consists of a careful reading of the literature, personal correspondence with medical men who have had experience at the front, with members of the Medical Corps and Medical Reserve Corps of the Army, and, in addition, a very large correspondence with physicians and surgeons, chiefly in the Southern states, in regard to the Medical Reserve Corps.

The problem of medical preparedness may be divided into three parts: (1) the Medical Reserve Corps; (2) the general activities of the National Red Cross; and (3) the special activities of the Red Cross in securing the required number of trained women nurses.

THE MEDICAL RESERVE CORPS

Granting that we have a sufficient number in the Medical Reserve Corps for the needs of the present Army of 1,000,000 men, we know that this number is deficient in medical men under the age of thirty-five and deficient in men with certain special training, for example, orthopedic surgeons.

In addition to this, the probabilities are that the medical profession of this country

must furnish its quota for the second and perhaps the third million of men.

Granting that 10,000 medical men is the quota for 1,000,000 men on the firing line, this number of doctors will have to be increased as the reserves are called upon to take the places of the casualty lists. In addition to this we know that our allies—England, France, Italy and Russia—will require from us a large number of trained physicians and surgeons.

It is my own estimate that if we desire to meet the medical situation with efficiency, we should prepare ourselves to select from the medical profession in the United States at least 45,000.

THE RED CROSS

It is very important for the public in this country and the general medical profession to know that voluntary aid in time of war and in any great National emergency or catastrophe is essential.

The one and the best organization for the superintendence of all the activities which have to do with voluntary aid is and should be the Red Cross.

The Red Cross should be able to get its contributions from those who have an income not only sufficient for the necessities of their families, but for luxuries. Contributions for the Red Cross should represent the luxuries abstained from during this great emergency.

There is still another group who should contribute. The majority of men and women who volunteer their services to the country, and who are commissioned with a definite rank and definite pay, give their services for a much smaller financial return than they had been previously earning in civil life.

Why should not those whose age, physical defects, or lack of special training prevent them from serving the country, make the same financial sacrifice as those who enter the service and make a voluntary contribution to the Red Cross?

The work of the Red Cross should in a large measure represent the labor of those who in time of peace have idle hours.

No doubt both men and women employed in the great industries concerned with munitions of war and the care of the civic populations will wish to help with part of their earnings and wish to give labor during their rest periods.

However, it is of the greatest importance that this class of patriotic workers should be protected. They need their rest periods or fatigue will make them stale for the increased efficiency necessary in the demands of this National war.

There are many smaller organizations raising money and stimulating the making of surgical and other supplies, but these organizations should realize the necessity for using the Red Cross for the one channel through which their money and supplies should be transported and distributed.

The Red Cross is an integral part of the War Department and acts under the authority of the Secretary of War and the Surgeon-General of the Army.

GRADUATE NURSES

It would be as much of a mistake to send untrained women to nurse our soldiers in France as to enlist untrained men in the Medical Reserve Corps. Unfortunately the voluntary nurses' aid or the partially trained female nurse seems very anxious to be allowed to go to France to help in the care of wounded there, but they do not show the same eagerness to assist in the nursing problems at home.

As long as it is possible to get a sufficient number of trained nurses for the Army hospitals in France, it will be unwise to send insufficiently trained women.

There is a large committee of experts considering this difficult problem, but there are a few facts that the public and the profession now should know.

Nurses trained in public health work should not be taken for the Army unless proper and efficient substitutes can be found for them, and except in a few instances this seems doubtful. The efficiency of the Army depends as much upon the protection and preservation of the health of the Nation as upon the protection and preservation of the soldier.

As the scarcity of trained nurses increases, the public should not employ or retain them in private homes. Individuals sufficiently ill to require the services of a trained nurse should go into a hospital where one or two nurses can care for a number of individuals as well as for one individual in a private home.

In some cities where there are a number of smaller hospitals the possibilities of closing one and enlarging another should receive careful consideration. Such a measure would undoubtedly release a number of trained nurses for Army work.

Women who have been trained as nurses, but who have left this occupation for one reason or another, should send their names to the headquarters of the National Red Cross in Washington, as they might be able to act as substitutes in home hospitals, and so release nurses for duty in France.

Young women of an age over twenty-five and with a good education, especially those with a college education, should volunteer to enter training schools for nurses. Women of this quality can be more rapidly trained and can be helpful to the Nation during this emergency, and can give up this work after the emergency is over.

THE MEDICAL PROBLEM

Expert opinion states that the winning of this war will depend as much upon the proper care of the soldiers by the Medical Department as upon any other factor.

The care of the soldiers begins with the physical examination, which should be so conducted by a sufficient number of doctors and a sufficient number of experts as to send to France only the young men physically fit.

If our present knowledge of preventive medicine and sanitation is given its opportunity, the soldier who goes to the front should fear no disability, except from a bullet.

If the organization of the activities of the Medical Department from the firing line to the home hospital is given the means and the men, the wastage from gunshot wounds should be reduced to a minimum.

There are many difficult problems in the treatment of a wound in war. The first, is to institute the expert treatment in as short a period of time as possible after the infliction of the wound.

This necessitates a larger number of stretcher bearers and a larger number of young, well-trained surgeons with the troops and in the first dressing stations. The new problems of transportation and the treatment of wounded during the intensity of an action are by no means settled.

The hospital provided with its expert staff of operators and assistants and trained nurses must be moved nearer the front as close as it is possible to find protection. This problem is easier when our Army advances and does not retreat.

At the present time the Carrel-Dakin method of treatment of wounds seems to be the one of choice, and the sooner this is instituted the better. The surgeons of this country must be taught this method and must be trained in all the new experiences with infected war wounds.

There has already been one great contribution to the antitoxin treatment of infected gunshot wounds. Dr. Bull, of the Rockefeller Institute, has apparently discovered the antitoxin for the gas bacillus infection, not only a protective serum, but a curative one.

Next to the local treatment of the wound and the transportation of the wounded, comes the primary fixation of the extremity during this transportation, and later the proper fixation of the wounded limb during the healing of the wound. This, to a large extent, is a purely orthopedic problem, and at the present time there is a great deficiency in this country of trained orthopedic surgeons.

These facts demonstrate that at the present time the precision of wound treatment, transportation and orthopedic apparatus have by no means reached a position equal to that of preventive medicine and sanitation.

There is a large field for the surgical bacteriologist to follow the lead of Bull and discover, if possible, more protective and curative sera.

There is also a large opportunity for the chemical investigator to continue along the lines of Carrel and Dakin and to discover, if possible, a more effective chemo-therapeutic agent for the continuous antiseptic treatment of wounds, for which at the present we have no curative or protective serum.

There is a large opportunity for experimentation and investigation of the practical problems as to when the wound should be operated upon, as to the technique of

this operation in the different regions, and as to the methods of drainage.

During the healing of the wound, especially on the extremities, there is ample opportunity for improvement and simplification in the methods of fixation.

The orthopedic work has become a first-line problem, and not, as many surgeons in this country formerly considered, a third-line, or home problem.

It has been reported that some 300 soldiers were returned to London as hopeless cripples. Trained orthopedic surgeons in the third line were able to return 225 of these men to the front within one year.

It is easy to imagine that precious time would have been saved and the number would have been increased if this orthopedic treatment had been instituted in the first-line hospital by specially trained men.

It seems to be the opinion of the authorities in this country that no wounded soldier should be returned home until the most expert treatment in France has demonstrated that nothing more can be done to restore him to further duty. But even in this group the beginnings of instruction and re-education will have to take place with the beginning of his treatment of reconstruction.

For humanity's sake our soldiers must have this effectual medico-surgical care. In addition, it is also an economical problem. It will reduce the cost of the war. Apparently the most expensive thing in this war is the well-trained soldier, but far more important than this consideration is the winning of the great drive for democracy, and this practically depends upon reducing the wastage to a minimum. This is largely in the hands of the Medical Department.

When the medical profession of this country appreciates this necessity, they will hear, understand, and answer the message which calls them to offer its services to the country at home or with the Army.

The appreciation of the medical problems is an indication that you have heard the message, and the only answer is a voluntary draft. The medical profession is a special class, but it has not special privileges, only special responsibilities.

A voluntary draft depends upon the proper appreciation by every member of the medical profession of his individual responsibility.

Individual responsibility means universal military training. The latter should be interpreted as a condition in which to meet the necessity of the Nation. Every individual, man or woman, in the country offers to do his or her part, and train for this part.

Efficiency of the Army in France must not be handicapped by the inefficiency of those at home.

MEDICAL MEN UNDER THE AGE OF THIRTY-ONE

Some of these physicians have been drafted and apparently granted the same exemptions as any other individuals. The probabilities are that these men will ultimately be turned over to the Medical Department of the Army. Every private soldier in the United States Army has a right to request an examination for commission. If he passes this examination he must be commissioned as an officer, if there is a vacancy. Medical men, therefore, if drafted, can request this examination, and if they pass it, there is no doubt as to the vacancy.

What is the individual responsibility of a graduate in medicine at the draft age, not drafted, or released on account of some proper exemption? From my study of the question it is the same, and it has no relation whatever to the draft. The Medical Department of the Army needs these young men. Their entering the Medical Corps should not depend upon whether they are drafted or not, nor whether, if drafted, they are exempt for some reason or other.

The Hospital Internes.—The majority of physicians under thirty-one make up our hospital internes, and all are agreed that it will be impossible to conduct the civic hospitals without the help of these men. How, then, should this problem be handled for the best interests of the hospital and of the Army?

Internes who have served one year or more in a hospital and who desire to enter the Medical Corps of the Army, Navy or Public Health Service should be released at once. The needs of these departments of the Government are urgent, and for the individual this is a life career, and he should enter it the moment he has the proper requirements.

Internes who have served one year or more in a hospital who do not desire to enter the Medical Corps of the Army, Navy or Public Health Service should be released for the Medical Reserve Corps of one of these departments, if it is possible to get a less experienced graduate for a substitute.

There are many young physicians in this country who began to practice immediately after graduation, either because they were financially unable to take a hospital year or because they could not find a vacancy, and perhaps a few because they could not pass the examination. These young physicians will undoubtedly be handicapped in the practice of medicine for the rest of their lives. Here is an opportunity to remedy this defect and help both the individual and the community. Get hold of these men, substitute them in the hospitals for men who have had one or more years' experience, and thus release for the Medical Reserve Corps a group of men almost indispensable for medicine and surgery in war.

As soon as these men have had their hospital year they can enter the Medical Reserve Corps.

Every civic hospital should reduce the number of its internes to the possible minimum. Those hospitals in cities associated with medical schools should take some fourth-year students and substitute them for internes physically fit to go into the Medical Reserve Corps. As hospital internes finish their one year's experience only those physically unfit for the Army should be retained by the hospital for the position of Senior Interne. All the others should be allowed to enter the Medical Corps or the Medical Reserve Corps. No young physician with this training physically fit should waive this duty to his country.

If it is decided not to take women physicians into the Medical Reserve Corps, we should then offer to these young women interneships in our hospitals and so release the men.

My correspondence demonstrates that what I have just written is possible and simply a question as to whether a majority of my colleagues will consider it feasible.

MEDICAL MEN BETWEEN THIRTY-ONE AND THIRTY-FIVE YEARS OF AGE

Financial Obligations and Dependents. My own investigation of the situation seems clearly to show that a large number of men at this age who are physically fit and specially needed on account of their training, do not volunteer their services because they have dependents or debts. Apparently the average well-trained young physician starts in practice with no balance in bank, or even with debts. He soon learns that he has an increasing earning capacity, and he finds it necessary, in order to improve himself and his earning capacity, to increase his overhead expenses. In view of the justifiable hope that his income will increase, he does not himself practice economy nor encourage his growing family to do so—a situation, therefore, entirely different from a similar educated individual on a salary.

It is my opinion that this forms a very large group of physicians.

To meet successfully the medical problem of the war, the probabilities are we shall require more men in this group than in any other. Their youth makes them specially qualified for the physical strain in the zones of advance. Many of them are specialists in the various lines of medicine and surgery.

At the present time it would appear that the "high price of doctors" might interfere very seriously with the work of the Medical Department of the Army. How shall this problem be met? There is no doubt that if the rank of the Medical Reserve Corps is increased, the Surgeon-General will be able to offer this group a larger number of captaincies and majorities. However, I am confident from my study that this will not settle the problem. These men must make a financial sacrifice. Their families must live more economically. Some provision must be made to help them with their debts.

Practically every doctor who goes with the Army makes a financial sacrifice. Every one who remains at home, who is not on a salary, will undoubtedly have an increased income. Some thought should be given to the proper adjustment of this purely financial problem. If it can be adjusted, it will release for the Army the men we need most.

At the present time the average age of medical men in training at Fort Oglethorpe is over forty, a little younger in Fort Benjamin Harrison. It is also quite true that the majority of reserve officers sent to England and France are aged less than thirty-five, and that a number in this younger group are retained in base hospitals.

Nevertheless and in spite of this, the chief reason given by a young well-trained physician for not volunteering his services is financial. I have studied this in detail in the group of Johns Hopkins graduates in the Southern states. I hope shortly to publish this statistical investigation.

I have suggested to these men to try to form a partnership, so that if they go, the increased earnings of the partner left at home will meet the financial obligations of both. In a few instances this partnership has been satisfactorily arranged, and splendidly trained and physically fit men have entered the Corps. Their practice is being taken care of either by a man aged over fifty-five or one physically unfit.

PUBLIC HEALTH SERVICE

No one seems to disagree that the men in public health work should not be disturbed. In fact, it would appear feasible to urge upon the different states that they greatly increase all public health appropriations, and if necessary increase the personnel. If the public health officials in this country had sufficient men and means, the reduction in the number of communicable diseases in this country would be so great that a number of physicians in practice would be released for Army work, because of reduction of sickness in the civil population. Dr. Williams, the head of the State Board of Health of Virginia, called attention to this in relation to the scare from infantile paralysis.

The Medical Departments of the Army, Navy and Public Health Service of the Government will undoubtedly in the future employ the sanitary experts of the state and county more and more in the sanitation of the now established training camps.

If it is found that the state and county sanitary departments, under the direction of officers of the Army, Navy and Public Health Service, can properly protect the soldiers in these camps, medical men in the Reserve Corps will be released for sanitary work in France.

I would suggest to the public health service of the states and counties to select physicians physically unfit for work in France for sanitary duty at home, of course, provided that their training is equal to the requirements.

MEDICAL SCHOOLS

No one for a moment would agree that any teacher essential to instruction in the medical schools should be allowed to handicap its faculties by entering the Medical Reserve Corps for service in France, and apparently the medical schools in this country have given from their faculties up to the danger point.

The question to be considered is: Can more fourth-year men be sent with the base hospitals and receive their teaching there, as has been done by the Johns Hopkins Unit, and thus relieve the home group of teachers? When training camps are near medical schools, should we not consider the employment of part of the time of teachers and experts in the community for the medical work in the training camp, and so relieve full-time men for service in France? I know that many dislike at the present time to consider anything but full-time reserve officers. But when the demand for 45,000 comes all of these possibilities will have to be considered in the readjustment and redistribution of the medical profession in order to obtain the greatest efficiency in this great drive for democracy.

At the present moment it is the duty of every graduate in medicine to consider his individual responsibility: First find out whether he is physically fit. If he is, decide whether he can be spared from the community. If he happens to be in the public health service, or a teacher in a medical school, or the only physician in a rural district, there is no question as to his exemption from service in France.

If, however, he bases his exemption upon financial considerations, or dependents, he should make every effort by every possible means to so adjust his affairs that he can

give himself to the service of his country needed because of his age and special training, and at the same time, through the co-operation and help of his colleagues, protect his family and provide for his debts.

BASE HOSPITALS

There seems to have been no difficulty in getting the required personnel for the base hospital units. In fact, the volunteers for places in these units have far exceeded the number required. I am informed on the most accurate authority that a large number of well-qualified physicians and surgeons who have applied for positions with base hospital units and who could not secure such positions because the quota was filled, have not made requests for commissions in the Medical Reserve Corps.

To volunteer for a base hospital unit commits the individual as to his personal availability. If he is physically fit and has the proper qualifications to serve with a base hospital, he has burned his bridge behind him, and can offer no legitimate claim for exemption.

WHAT THE EUROPEAN WAR HAS TAUGHT US IN TRANSPORTATION AND HANDLING OF THE INJURED*

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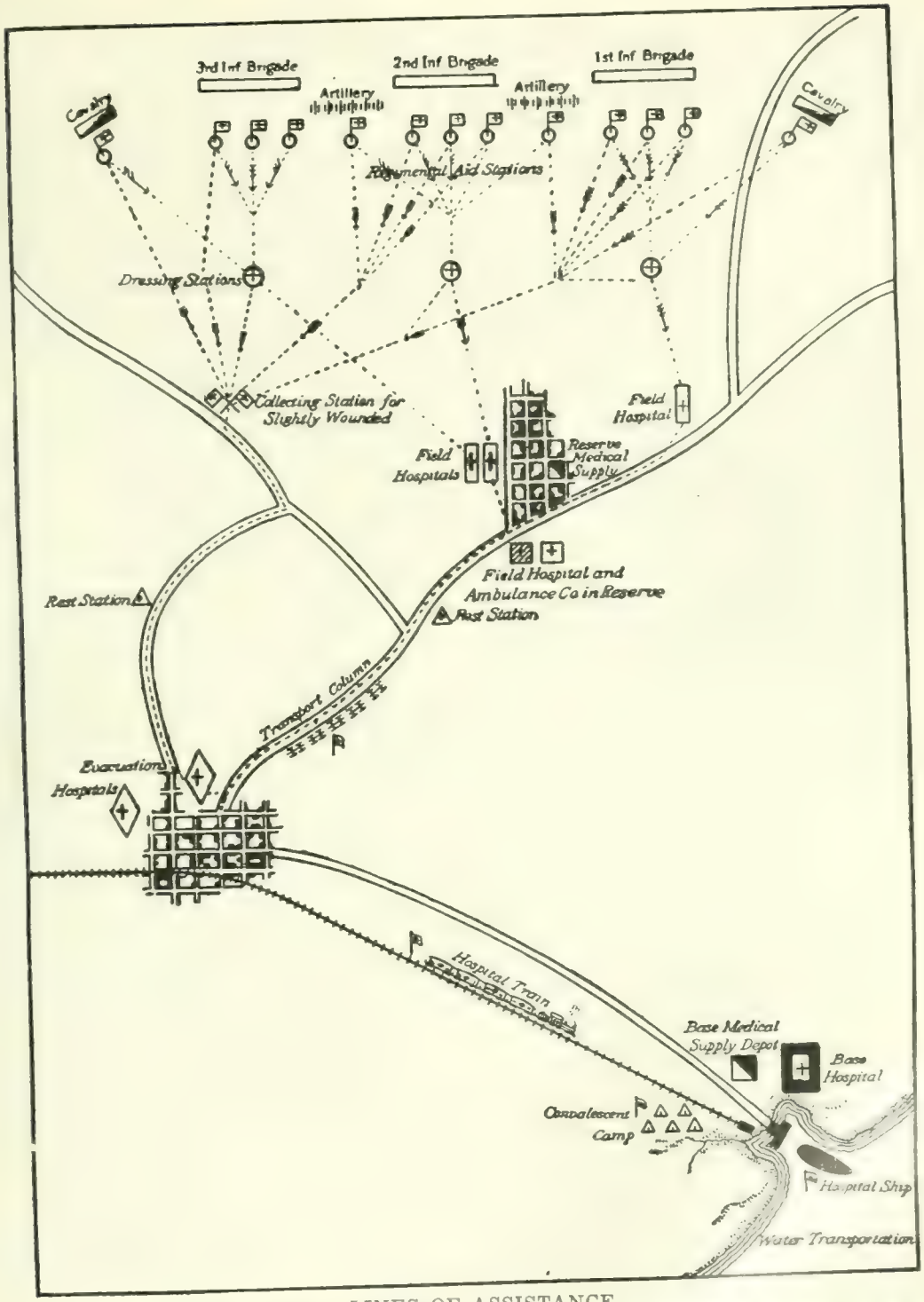
Before discussing the lessons of this war concerning the transportation and handling of the wounded, it is believed advisable to advert briefly to the methods heretofore employed in recent conflicts. The principle which is yet in force has been to pass the wounded from front to rear as buckets are passed by a volunteer fire brigade, i. e., from unit to unit. This requires a large personnel, but is quite the most orderly and expeditious manner yet evolved and secures to the wounded the greatest measure of care. To this end, there was established the following organization. First, the sanitary personnel on duty with the troops in action, i. e., on the firing line. These applied first aid dressings and restoratives, and during some lull in the engagement, especially at night, carried them to the first aid stations, organized from some other members of the sanitary troops on duty with the regiment. Then, if need be, dressings were applied, or rectified, and patients were collected for removal in groups, or were sent back to the front if their wounds proved to be trivial. The wounded unfit for further action went from this point either to a station for slightly wounded, or to a dressing station. At these stations further assistance was rendered. At the latter emergency operations were performed, but it was the practice, prior to the war, to discourage operations at points so far forward. From the stations for slightly wounded and the dressing stations the wounded went to field hospitals which were established as nearly as was safe to the firing line. From there the wounded who would not recover for several weeks were sent to evacuation hospitals or clearing hospitals which stood at the head of the line of rail or water communications. Wounded were moved by hospital trains, ambulance trains, or by trains of any kind along the lines of communication, or, if the line of communication was over water, by hospital ships or transports.

Along the railway were placed rest stations for wounded unable to travel further, refreshment stations, and line of communication hospitals. The wounded who would probably recover in a few weeks were treated in these hospitals, while the more serious cases were sent as rapidly as their condition permitted to the base, whence they were distributed throughout the country. Such were the general principles evolved and the units employed prior to the present war (and during the present one on the Eastern front), since Queen Isabella established the first field hospital at the siege of Rhonda, and Frederick the Great developed field hospitals equipped to move with his troops. The most important units organized since the war began have been surgical units, consisting of a civilian surgeon, with professional assistants

*Read before First Annual Meeting of Texas Railway Surgeons' Association, Dallas, Tex., May 7, 1917.



LINES OF ASSISTANCE

Major Ford used this diagram by permission of Lieutenant-Colonel Paul L. Straub. It is taken from his book, "Field Service in Campaign," published by P. Blakiston's Son & Co.

selected by himself or by professionals supplied by the Red Cross or the War Office.

The most important modification in this principle of procedure, learned from the present conflict, has been that of establishing operating theatres well to the front and reducing to a minimum the distance that wounded must be transported before they could be operated upon. With a view to this, aid stations, dressing stations, operating units and field hospitals are now placed much further to the front than formerly had been deemed advisable. Aid stations are usually located in the trenches or in their immediate vicinity. Sometimes they are subterranean. The wounded are usually brought to them through communicating trenches which afford a modicum of protection. Usually they are removed at night.

On the Western front operating theatres are established, sometimes well within range of the enemy's guns, and in them, if there be adequate personnel, surgeons and nurses may work in 8-hour shifts throughout the day. The stations for lightly wounded who can walk to the station where they would receive aid have been abolished on the Eastern theatre.

On the Eastern front, where the line is more mobile, dressing stations yet operate in much their former manner. While they do not, if avoidable, perform serious operations, they prepare patients for their transportation to the field hospitals. One of the further lessons of this war, therefore, has been that the establishment of operating theatres in the vicinity of a relative stabile line is advisable, while for a fluctuating line they should be further to the rear, but further forward than has been contemplated heretofore, in order that they may give to the wounded earlier operation than field hospitals could give as formerly located, and more thorough than is possible in dressing stations. On both fronts these field hospitals and operating theatres are sometimes well within range of hostile fire. These changes in the location of units and their influence upon transportation were occasioned by the need of early operations. The necessity for promptitude in treatment was not appreciated at the outbreak of the war, for it was believed that gunshot wounds were sterile. The reverse was found to be the case.

Necessity for early operations was emphasized by two facts: First, first aid does not prevent infection of wounds in trench warfare so securely as has been anticipated. In from 90 to 95 % of the cases reaching the base hospitals, three days after injury has been received, infection has occurred, and practically all wounds involving the bones become infected. A few bullet wounds were sterile, but all others, whether caused by shrapnel, shell or grenade, were infected. Second, infection, because of the character of the warfare, was frequently caused by anaerobic organisms, and to meet this complication properly prompt and wide opening of wounds was executed. The mortality from such infection is so profoundly influenced by the promptitude of treatment that it was found more advisable to place the operating units far to the front rather than to rely upon transportation which might not be available to take them a long distance to the rear. Even at present, it takes five to twenty hours to remove the wounded from trenches to hospitals, though on the Western front no time is spent at intermediate stations. The mortality in the early stages of the war from gas gangrene was said to be from 80 to 95 %. When the delay before patients could reach the hospitals had been reduced from five days to three or less, this mortality fell to about 15 %. Also evacuation hospitals have to be very large because of the likelihood of a great number of wounded being brought in suddenly, and because after an operation it is dangerous to send the patients immediately to another and more remote hospital. A small hospital will not take care of the number of wounded that may come in after an attack of half an hour. In the beginning of the war field hospitals were units organized to care for from 200 to 400 patients. With the progress of the war it became more and more apparent that it was necessary to have much larger organizations. Today advanced hospital units of three thousand beds at least are used in the French Army. These hospitals are made of portable houses, and not of tents. They should be as comfortable as possible, and the money spent in these

hospitals is a very good investment, because of the fact that operations performed under good conditions save the lives of many men and a man has a value of more than $6,000. These hospitals are located on a railroad branch for convenience in sending patients further to the rear, and at a point which can be easily reached by the automobiles coming from the battlefields. Smaller hospitals of twenty or fifty beds, for abdominal operations, have been established at several points a few hundred yards from the line. But the number is inadequate because the supply of trained surgeons is limited.

To meet this shortage so far as possible a special outfit for operating work was devised, the "Ambulance Chirurgical Automobile." It is composed of a portable operating room, as well as a dressing room, sterilization room and an X-ray room. A steam boiler provides steam for the large sterilizer, for the radiators in the operating room and other rooms and also power for electric light and other appliances. The entire paraphernalia is carried on four automobile trucks. In the larger evacuation hospitals of over 3,000 beds, three or four of these operating units with their surgical staffs are used. Excellent as is this organization, it does not seem to be sufficient because the output of such operating rooms is too small for the large number of wounded who have sometimes to be operated upon in a few hours. It would appear advisable to devise a special type of operating plant where surgeons working in shifts could operate on four or five hundred patients in twenty-four hours. Four perfectly equipped operating rooms working together could handle in twenty-four hours about 2,000 patients. Some preliminary work has been done with this end in view, but it should be worked out more completely in order to be made practical.

Of the new apparatus that has been evolved for transportation of the wounded at the front, some of the more important are:

1. A short-handled litter provided with a seat and a back against which the patient leans while he is being moved through the tortuous trenches.

2. Blankets with handles sewed to their corners used as litters, especially by artillery divisions. They are carried as cushions on the caissons of the guns until needed.

3. Wheeled litters are used on the Western front, and in the Italian service a combined wheeled litter and sled, by which wounded can be moved over ice and snow, or on bare ground.

4. Wagons have been provided with uprights extending about the wagon body from which depend hooks provided with springs, the handles of the litters resting in these springs. It has been found that light wagons well packed with straw are much more comfortable to the wounded men when traversing rough roads than are ambulances. Automobile trucks that have carried goods to the front are also used for the removal of wounded to the hospitals at the head of the line of communication. The most important addition to the material employed for the transportation for wounded in this war are the automobile ambulances or automobiles utilized for ambulance purposes. On the Western front small, light ambulances are said to have rendered most satisfactory service since they could shunt around obstructions in the road, shell holes and other obstacles. On the Eastern front, heavier vehicles are said to have been more serviceable because of the fact that roads were sometimes rougher than on the Western front, and in the Carpathians steeper, so that more powerful, more solidly constructed vehicles have proven necessary.

Other units developed to add to the comfort of the wounded at the front are rolling steam laundries consisting of two or three trucks with laundry equipment installed, the power being generated from the auto engine, and other laundries having more elaborate equipment drawn by steam tractors, which can handle 5,000 pieces a day. Automobile bathing establishments are provided, consisting usually of a truck carrying twelve collapsible bath tubs, a hot water tank, and apparatus for heating the water by gasoline or alcohol. Great attention is given to bathing, and in every hospital facilities are provided whereby incoming patients receive a bath and, as a rule, undergo treatment to free them from lice.

Automobile ambulances have been extemporized by removing the tonneau and replacing it by an ambulance body, or the

rear seat and back of the tonneau are removed and cleats provided which would hold the litters solidly to the floor of the car. On the Western front especially the ambulances have ranged far forward, well up to the firing line, removing wounded at night from the first aid stations, which are well within range of the enemy's fire.

The units employed for the service and removal of wounded by railway next demand attention. Before the evacuation service was fully organized, most of the wounded were removed by transportation of any kind available, whether day coaches, freight or cattle cars. As the service developed these were replaced by organized hospital trains and ambulance trains, but after every heavy engagement these habitually proved inadequate, and some wounded were removd in any cars available, usually freight cars returning from the front, where they had discharged supplies.

The hospital trains were of numerous types. Some were made of dining cars, from which the fixtures had been removed and replaced by double-decked bedsteads cleated to the floor. These made excellent hospital trains. Others consisted of sleeping cars, but certain drawbacks to their use were found. They were heavy and difficult to load and unload since each car is divided into many small compartments which were not easily disinfected. Other trains consisted of day coaches from which the partitions and fittings had been removed, being replaced by standee bunks. Patients are loaded into these through an aperture in the side of the car which is normally kept closed.

The most satisfactory cars in many respects are the freight cars which not only open at the sides but give end-to-end communication. The advantage of these is that they are easily equipped with apparatus to support beds, etc. A drawback is the fact that they have no facilities for being heated from the engine.

There are many devices employed for the equipment of these cars. Perhaps the best is one that can be cleated to the floor, that can be adjusted to fit any car and is provided with uprights that support hooks provided with springs. These springs are important, as they compensate to a degree for the absence of springs under the cars or their excessive stiffness. The small freight cars in use in Europe accommodate eight patients each. By analogy it is believed that the best cars for general use in hospital trains in our service would be express cars or baggage cars, with side doors and end-to-end communications. Our Pullmans could be used more satisfactorily than sleeping cars abroad, as they are not cut into so many compartments, but unless prepared by extensive changes they present some of the objections observed in Europe. They are heavy; the upper berths are loaded only with the greatest difficulty; and patients have to be loaded and unloaded through a window. For the transportation of sick on the Canal Zone, an express car has long been used with entire satisfaction, but for the service in war its type of litters slung from the side of the car should be replaced by an apparatus which can, if necessary, receive the litters on which patients are brought to the trains.

Ambulance trains have proven a value which had not been demonstrated in former wars. While the hospital trains carry recumbent patients only, ambulance trains convey some wounded recumbent in cars such as those provided for hospital trains, but others, the majority of patients, sit in day coaches. The proportion of each type of car in ambulance trains differs in different countries, but as a rule provision is made for one recumbent to four sitting patients.

Originally ambulance trains were not provided with kitchen facilities, as the patients were supposed to be subsisted at rest stations along the line of communication. This proved impracticable, however, in some services, and now kitchen cars are provided on all such trains.

An important class of hospital trains is that provided for the transport of infectious cases only. Some of these are provided with a steam disinfecting plant, which receives its steam from the boiler; other employ vats, in which laundry can be disinfected, usually by phenol solution. These trains are disinfected after each trip either by formalin or cyanid developed in the car, or led into it, or by being rolled into sheds in which the gas is liberated and which are, in effect, large disinfecting chambers.

A valuable railway unit for the service of hospitals near the front consists of several cars, which are in fact large autoclaves in which linen, clothing, etc., may be disinfected either by steam from the engine or by formalin.

Yet another railway unit is a rolling supply depot consisting of three or four cars equipped with a kitchen, a large stock of table ware, cupboards containing comestibles, dressings and drugs, and quarters for the personnel of the unit, usually an officer and five or six men. These units replenish the rest stations along the line of communication, supply if need be field hospitals near the front, replenish supplies of hospital and ambulance trains, or are coupled to extemporized trains unprovided with equipment for removal of wounded, and serve them in their progress toward the base.

Another use made of railway stock is to employ empty box cars, on sidings near the front where no shelter is available, as rest stations or dressing stations for sick and wounded.

At the base, a new idea has been the extensive use of street cars for transportation of recumbent patients. The fittings are removed and replaced either by special apparatus, such as that used in railway cars, or the litters are placed on the floor. Recumbent patients are introduced through an aperture closed by a panel made in the side of the car.

Transportation of wounded by water has utilized but few additions in special apparatus to that known or in principle applied before the war. Its value, however, has been emphasized especially in the usage of small streams and canals.

AUTHORS' ABSTRACTS

Military, Railway and Emergency Surgery

A Few Simple and Useful Methods in the Treatment of Fractures. P. B. Magnuson, Chicago, Ill. The International Journal of Surgery, Vol. XXX., No. 3, March, 1917, p. 65.

The successful treatment of fractures sometimes requires considerable ingenuity in devising mechanical means to meet the individual case. The following devices have been of the greatest assistance to the author:

1. An extension for fractures of both bones of the leg, especially those which are compound and near the ankle-joint. Cut tendo-Achillis subcutaneously to relieve foot of posterior dislocating pull. Close wound with collodion dressing. Cover foot with stockinet, sheet-wadding, and plaster bandage wound over dorsum of foot, under arch and over heel in a figure eight. Incorporate a loop of window-cord into the sole for traction so that its pull will be exerted exactly in the long axis of the tibia to avoid angulation of the fragments. Part of the plaster shoe may be cut away when fracture is very near the ankle joint, and the leg may be rested upon a board and a carefully adjusted heel rest, and held firm with a blanket splint.

2. Extension for fracture of the shaft of the humerus. Place wrist in a narrow bandage sling. Put sufficient padding between upper arm and chest wall to insure a straight internal splint. Hang a shaped four-pound piece of lead pipe around forearm next to elbow to give straight traction. Apply plaster shoulder cap as straight external splint. Require patient to sleep in a Morris chair.

3. Bandage extension for reducing fracture of the forearm. Loop the centre of a long muslin bandage around the base of the patient's hand and tie ends around operator's shoulder, whence he applies extension as needed, having both hands free to manipulate fragments. Patient is held firmly away by a bandage passed under the body and affected arm and tied to opposite side of table.

4. Extension in fracture of the femur. Place patient's shoulders at the edge of operating table, resting the head on an outside support. Pass a sheet between the thighs and tie to the table over the shoulder of the affected side. Pass a loop of muslin bandage around patient's ankle in a Clove hitch (or see *Annals of Surgery*, July, 1916, p. 65) and hook to a compound pulley, through which extreme traction can be obtained from the foot of the table with no effort.

5. To apply a cast to a fracture of both bones of the leg. Swing the leg in a muslin support torn down to the leg in strips. Tie these in pairs across a horizontal beam to give even support. The plaster bandages can be wound about the leg between the strips, alternate strips being cut away as more plaster is applied. Traction, if necessary, can be maintained as in 4.

6. To prevent rotation of the lower fragment in fracture of both bones of the leg. After the cast has been applied and has almost hardened readjust the leg minutely to avoid either internal or external rotation, place a quarter-inch board six inches long just below the fracture and at right angles to the long axis of the leg, and incorporate it into the dressing by a few turns of plaster. This board when resting on the bed keeps the long axis of the foot in the desired plane.

EYE, EAR, NOSE AND THROAT

WHY A CYCLOPEGIC OR MYDRIATIC AS A ROUTINE?*

By J. M. Crawford, M.D.,
Formerly Professor of Diseases of Eye, Ear, Nose and Throat, Atlanta School of Medicine, and Later Professor of Otology, Atlanta Medical College,
Asheville, N. C.

I have been wishing for some time to obtain the general opinion of the medical profession in America as to the advisability of the use of a cyclopegic or a mydriatic in refraction. In order to get this information, during this last summer I addressed a letter to ninety eye specialists, nearly every state in the Union being represented. This letter contained a slip on which five questions were asked, viz.:

1. Is it your custom to use a cyclopegic in your refraction?
2. In what proportion of your refractive cases do you use a cyclopegic?
3. Do you consider a cyclopegic essential to a proper diagnosis?
4. Do you use a cyclopegic in patients over thirty years of age?
5. What cyclopegic is your preference?

Inasmuch as the first and last of these questions are really the most important ones, I deem it well to state here their answers as given me:

Dr. Carl B. Wagner, Chicago: "In some cases; possibly about 15 %. Atropine in children; homatropine in adults."

Dr. Newton Craig, Atlanta, Ga.: "As I think it is indicated, homatropine. I never see the need of atropine in refraction."

Dr. L. Webster Fox, Baltimore, Md.: "Under the age of 40. If patient has the time, atropia; if time is short, then I would use homatropine."

Dr. B. N. Dow, San Francisco, Cal.: "Yes, atropine in children, homatropine in adults."

Dr. S. L. Ledbetter, Sr., Birmingham, Ala.: "In all young people, especially school children, and adults when conditions demand. Cocaine and homatropine discs."

Dr. J. W. Jervey, Greenville, S. C.: "Yes, in routine work, homatropine. In many hyperopic young people, atropine."

Dr. Frederick W. Lamb, Cincinnati, O.: "Yes, homatropine 2 %, three or four drops instilled at ten-minute intervals. In sixteen years' practice I have seen only one case of acute glaucoma follow instillation of a mydriatic."

Dr. Samuel H. Brown, Philadelphia, Pa.: "Yes. atropia in varying strengths."

Dr. H. Bert Ellis, Los Angeles, Cal.: "In all patients under forty. In the majority of cases. homatropine."

Dr. John B. McReynolds, Dallas, Tex.: "Generally in young peope. In the older patients. homatropine; and in children, atropine or homatropine."

Dr. Edward A. Willis, Indianapolis, Ind.: "It is my custom to use a cycloplegic in practically all cases of refraction. Homatropine with cocaine."

Dr. Hugh Miller, Kansas City, Mo.: "Yes, but not in all cases. Atropia in children, homatropine in adults."

Dr. Edward Jackson, Denver, Colo.: "Yes, as a cyclopegic. Homatropine for most cases. Atropine for young children and some others."

Dr. W. A. Barr, Chicago, Ill.: "It is an invariable rule in young people. Atropia in children, but employment and circumstances will not always permit its use."

Dr. D. A. Kuyk, Richmond, Va.: "Only when fogging and retinoscope give doubtful result. Homatropine first, and if unsatisfactory, atropine."

Dr. Edward F. Parker, Charleston, S. C.: "Generally in patients under forty or forty-five years of age. Homatropine."

Dr. F. J. Bowles, New York, N. Y.: "Not always. Homatropine in adults. In children, usually atropine."

Dr. G. H. Stubbs, Birmingham: "Prefer a mydriatic in all cases up to forty. Atropine, three to five days, up to thirty. Homatropine every ten minutes for one hour between thirty and forty-five."

Dr. R. B. Ridley, Atlanta, Ga.: "In all cases except high myopia and presbyopia. Atropia, then homatropine."

Dr. Wylie McL. Ayres, Cincinnati, Ohio: "Always except when for good reasons not possible. Burroughs and Wellcome's Ophthalmic Tablets COC 1/50. Homat. 1/50 or Scopolamine 1 grain. water 1 oz. If patient will allow, drop in eyes for three days. Scopolamine only requires two drops in each eye one-half minute apart. Never use atropine for test work."

Dr. P. N. Balentine, Philadelphia, Pa.: "Yes, all under forty-five years of age, homatropine. Scopolamine my favorite. Atropia in children."

Dr. George W. Woodnick, Chicago, Ill.: "Yes. providing tension is normal and patient is not over forty-five. Homatropine for those who must depend upon work for a living. Atropine for children."

Dr. J. P. Matheson, Charlotte, N. C.: "Nearly always under twenty-five. Homatropine."

*Read in Section on Eye, Ear, Nose and Throat, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

Dr. George de Schweinitz, Philadelphia, Pa.: "Homatropine in adults; atropine in children."

Dr. B. D. Sibley, Birmingham, Ala.: "Yes, homatropine."

Dr. Leighton F. Appleman, Philadelphia, Pa.: "Yes, homatropine in adults, atropine in children."

Dr. H. L. Bauer, Jackson, Miss.: "Yes, atropine, methylbromid of atropine."

Dr. J. E. Gleason, Detroit, Mich.: "Yes, homatropine."

Dr. Mary Buchanan, Philadelphia, Pa.: "Yes, homatropine in adults over twenty. Scopolamine in school children and patients under twenty."

Dr. A. Braun, New York, N. Y.: "Yes, atropine in very young children and homatropine in patients over ten years."

Dr. Hiram Woods, Baltimore, Md.: "Yes, homatropine excepting in cases of strabismus for young children with a high grade of accommodation. Then I use atropine or hyoscine."

Dr. William Ford Blake, San Francisco, Cal.: "Yes, homatropine in children and adults up to fifty-five years. Euphthalmine for individuals over fifty-five."

Dr. E. H. Cary, Dallas, Tex.: "Yes, usually homatropine. Atropine when needed, which is quite often."

Dr. Robert Blue, Chicago, Ill.: "Yes, homatropine as a rule, atropine in selected cases."

Dr. F. M. Chisolm, Baltimore, Md.: "Yes. Atropia, one-fourth to one-half per cent., for three days. Homatropine in adults, or when time is limited. (6 grs. to oz. of water.)"

Dr. C. W. Kelly, Louisville, Ky.: "Yes, 1 % atropine in cases up to twenty, and 2 % homatropine in cases over twenty years of age."

Dr. H. H. Briggs, Asheville, N. C.: "Yes, homatropine, hydrobromate, 1 to 2 %. One drop every ten minutes until five drops are used. In young children and asthenopic cases I use atropine instead."

Dr. J. M. Ray, Louisville, Ky.: "Yes; 1 % solution atropine in children; 2 % solution homatropine in adults."

Dr. J. E. Sternberg, Boston: "Yes, homatropine."

Dr. Walter E. Murphy, Cincinnati, Ohio: "Yes, homatropine."

Dr. Edward A. Looper, Baltimore, Md.: "Yes, atropine up to twenty years of age, and older in some cases. Homatropine after this age."

Dr. L. O. Mauldin, Greenville, S. C.: "Yes, homatropine."

Dr. Harry Friedenwald, Baltimore, Md.: "Yes, homatropine."

Dr. H. W. Allport, Chicago, Ill.: "Yes, first atropine for accuracy. Second, homatropine for convenience."

Dr. F. C. Heath, Indianapolis, Ind.: "Yes, homatropine."

Dr. Robt. S. Lamb, Washington, D. C. "Yes, hyoscine and homatropine."

Dr. T. E. Oertel, Augusta, Ga.: "Yes, as a rule homatropine; and where indicated, atropine."

Dr. C. R. Holmes, Cincinnati, Ohio: "Yes, homatropine solution, 2 %, instilled eight times, five minutes apart."

Dr. G. S. Tennent, Asheville, N. C.: "Yes, in all my cases. Between 29 and 30 % of my cases are presbyopic; taking off 10 % of these that receive drops in some form, leaves:

"Natural cases ..... 26.5 %
"Homatropin cases ..... 65.0 %
"Atropin cases ..... 8.5 %"

Dr. Charles H. May, New York, N. Y.: "Always in every patient up to the fortieth year. In many between forty-four and forty-six. Homatropine hydrobromate 2 %, cocaine muriate 1 %. Drop one drop in eye every few minutes for four doses; then wait one hour. After the examination I instill one drop of a ⅛ % solution of eserine and a few minutes later a second drop."

Dr. G. A. Hinnen, Cincinnati, Ohio: "Yes, homatropine 2 % in adults, atropine 1 % in children."

Dr. B. F. Baer, Philadelphia, Pa.: "In patients under forty-five years of age, yes. Atropia. However, few patients can afford the time. Homatropine is a good substitute when properly used."

Dr. Clifton M. Miller, Richmond, Va.: "Yes, homatropine except when atropine is necessary."

Dr. Frank D. Phinney, Cincinnati, Ohio: "Yes, homatropine in adults, scopolamine in older children, and atropine in young children. In fifteen years' work had one case of acute delirium following scopolamine, lasting several hours."

Dr. Noah Adams, Kansas City, Mo.: "Yes, homatropine gr. 4, cocaine gr. 4, boric acid gr. 10, water oz. 4. Sig. One drop every ten to fifteen minutes for four times. Wait one-half hour."

Dr. W. E. Campbell, Atlanta, Ga.: "Yes, atropia, but use homatropine mostly on account of its quickness."

Dr. S. Latimer Phillips, Savannah, Ga.: "Yes, in selected cases. Homatropine. Atropia."

Dr. Casey A. Wood, Chicago, Ill.: "Yes, I employ a cyclopegic in most cases of suspected refractive error practically in all patients under forty-five years of age. I regard this practice as necessary, because it not only enables one to measure the static refraction satisfactorily, but it is easier and more effectual to make use of skiascopy and the ophthalmoscope."

He also says that in patients under thirty years old and in those cases where ciliary rest is required: "I prefer atropine, a single drop of a 1 % solution being put into the eye after meals, three times daily for two days, i. e., six times. In other patients I use ophthalmic discs containing 1/50 of a grain each of homatropin and cocaine; in all inserting three lamellæ at intervals of about twenty minutes. The refraction can usually be determined at the end of about an hour and a half after the first disc is used. I also think that an acqueous solution 2 % each of homatropine and cocaine acts well in many instances."

Dr. J. Browne Larose, New Orleans, La.: "Yes, excluding presbyopia in at least 95 % of my cases. Atropine, especially in refracting children. I use homatropine only when patient's time for refraction is limited."

Dr. S. G. Dabney, Louisville, Ky.: "I habitually use a cyclopegic in persons under forty years old. Sometimes omit it in younger people when test types and objective examination coincides, and sometimes use it in older persons when perfect vision is not obtained or ciliary spasm is suspected. Homatropine 1 gr. to 1 ounce wa-

ter. Drop in eye every ten minutes for 1 hour before ex."

Dr. Adolph Pfingst, Louisville, Ky.: "Yes. Homatropine, except in those in whom this will not suspend the accommodation. In cases of squint I revert to the use of atropia."

Dr. Peter A. Callan, New York, N. Y.: "Yes, I use a cyclopegic in all cases up to fifty years; 75 % of those between fifty and sixty. Frequently after sixty. Atropia three times a day for two days and in the morning of third day. Homatropine 2 and cocaine 1. Applications nine times."

Dr. J. W. Weeks, New York, N. Y.: "Yes. Cocaine 2 %, homatropine 1 %. I use a solution of eserine in the eyes before patient leaves office."

Dr. H. M. Lokey, Atlanta, Ga.: "Yes. All below forty. A few as late as fifty. Homatropine and cocaine combined. Occasionally, atropine."

Dr. W. D. Babcock, Los Angeles, Cal.: "No. When I do use a mydriatic I use atropia."

Dr. J. H. Crawford, Atlanta, Ga. "No, except in cases of strabismus and spasm of the accommodation. Homatropine in adults and atropia in children."

Dr. A. Edward Davis, New York, N. Y.: "No, except in about 5 %. Atropine one-half of 1 % in children; 1% in adults. Scopolamine 1/10 % in children; 1/5 % in adults."

Dr. Henry R. Slack, LaGrange, Ga.: "No. The late St. John Roosa (D.B.) taught me not to use a mydriatic."

Dr. Dunbar Roy, Atlanta, Ga.: "No. But when I do use one I use homatropine unless there is a spasm of accommodation, and then I use atropia. I have not used a mydriatic for several years in the large majority of my refractive cases. I can give the patient better results and get better results for myself by so doing."

Dr. Francis Valk, New York, N. Y.: "No. But if I should I would use atropia."

Allow me to quote him still further. He says: "It is not a question of shall we use a mydriatic, but who shall use them? A doctor should know when a mydriatic was necessary and when otherwise. That the use of atropia or any other drug depends on the skill and experience of the examiner. That physicians should use atropia in the years of age until they fully understand and know what they see in the pupillary reflex, and correction of refraction in people under thirty what the curvature of the cornea will tell them, and how to put these findings with the ophthalmoscope. Until then they had best use a mydriatic, but after this it becomes a matter of choice and necessity. It is what we know and understand from the objective tests, not one test, but the way they all will dove-tail, that we can know what the true refractive condition is."

As I have already said, I felt that a general expression from the medical profession on this subject would be of more interest to this Society than the opinion of any one man. I have, with that in mind, prepared this paper.

Discussion follows next paper.

EYE STRAIN AND ITS RELATION TO REFLEX NERVOUS TROUBLES*

By Lewis M. Scott, M.D.,
Jellico, Tenn.

The term "eye strain," while not a scientific one, is commonly used to describe certain neuroses resulting from an uncorrected error of refraction as well as the functional disturbances that follow the over-use of a normal eye or one that is emmetropic. Any defect of the extra-ocular muscles so far as it relates to eye strain and its resulting nervous symptoms is rarely thought of, yet if we will examine more closely while looking for the causes of eye strain, we will find that some muscular imbalance is the disturbing factor in quite a number of cases.

In view of the fact that a large per cent. of the reflex nervous phenomena are due to eye strain, it is indeed strange how silent our text-books are upon the subject.

The sense of sight is the only one of the special senses that we use continuously during our wakeful moments, and when we add to this the fact that the sense of sight is the most highly organized of the special senses, and furthermore the fact of its complex nerve supply and the intimate connection of this nerve supply to the sympathetic nervous system by way of the ciliary ganglion and the cervical ganglia, we can the better appreciate the part that eye strain plays in the cause of certain reflex nervous affections which follow the continued effort to overcome some refractive error or the over-action of some of the co-ordinating muscles while endeavoring to adjust some imbalance, especially if the subject be one of nervous temperament.

Thompson was one of the first to suggest astigmatism and other optical errors as a cause of reflex nervous conditions, in a clinical lecture delivered in the Jefferson Medical College in 1879. Since that time the fact has been well established, and thousands of sufferers have been relieved only by the proper adjustment of lenses.

The various types of headache: vertigo, facial chorea, choreic movements of the

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*Read in Section on Eye, Ear, Nose and Throat, Southern Medical Association, Tenth Annual Meeting, Atlanta, Ga., Nov. 13-16, 1916.

diaphragm and muscles of the neck and throat, disturbances of the digestive apparatus — such as indigestion, flatulency, nausea and vomiting—we encounter from eye strain.

Dr. George M. Gould, in an article upon this subject ten years ago, makes this positive statement: "That a vast majority of all cases of headache, certainly nine-tenths, are due to eye strain is a truth beyond question." While this is considered too radical by the rest of the profession, yet I am convinced from my own personal observation and from the reports of other men engaged in this field of work, that if we will make a careful and systematic search for the causes of recurrent attacks of headache, we will discover that in at least 50 % of the cases there will be evident some degree of hyperopia, astigmatism (frequently a combination of the two) or some anomaly of the ocular muscles, and these, which, if corrected by suitable lenses, and by the proper adjustment of the muscular imbalance, will relieve these headaches without the aid of any other remedy.

While the other functional neuroses I have mentioned are not so frequently the result of eye strain, yet they are frequent enough to demand our earnest consideration. A few ophthalmologists in recent years have called attention to derangements of both the thoracic and abdominal viscera, which they were able to trace to this cause. Hansell reports a case of chronic dyspepsia which he entirely relieved by the application of lenses after all other agencies failed.

When the physician refers his surgical case for operation, he is very careful to select a man whom he considers equipped with skill to render such surgical aid, yet how little concern does he give them when it comes to the matter of having his cases of eye strain properly refracted and suitable lenses adjusted. And, furthermore, the fact that the glasses the patient is wearing may be entirely the wrong correction is not taken into consideration when endeavoring to locate the cause of some obscure nervous affection.

It is claimed by some ophthalmologists that not more than one-fourth of the glasses worn today are lenses of proper correction and correct adjustment. I fully believe if a scientific test were made of a given number of cases, the results would show this statement to be no exaggeration. If this condition be true, the science of refraction is upon a very low plane and the oculists of the country are responsible for it. There ought to be more uniformity in the methods and results when it comes to dealing with so delicate and important a branch of ophthalmology as that of diagnosing and treating errors of refraction. When we stop to consider that by far the largest per cent. of eye cases that come to us are those requiring relief from some visual defect (especially is this true with respect to those of us who do not reside in medical centres), we can the better appreciate the importance of proficiency in this branch of our work. Perhaps the modern operating room appeals more to the average student of ophthalmology, creating in him a greater ambition to do ophthalmic surgery than to become a skilled operator in the less ostentatious though no less important field of refraction.

When we think of this branch of the oculist's work being entrusted largely to the hands of the optometrists, opticians, jewelers, itinerant spectacle venders and such like, who have no knowledge of the delicate mechanism of the eye, to say nothing of its relation to the sympathetic nervous system, and, furthermore, who have no legal right to administer so important a drug as a cycloplegic when attempting to examine for errors of refraction, it should cause us to be filled with a sense of shame and disgust. It would be just as sensible and right for the pharmacist to examine and treat diseases by the aid of medicines as for the optician to attempt to correct errors of refraction by the aid of lenses.

With reference to the optometrists, it seems that they have come to stay, notwithstanding the fact that organized efforts have been made by state medical societies to oppose legislative acts which authorize them to register and engage in the work of refraction. The fact that the Chicago Ophthalmological Society engaged in a losing fight against the optometry bill in the State of Illinois last year is proof of the above statement. At the present time all but the following states have passed such a bill: Alabama, Kentucky, Louisiana,

Missouri, Ohio, Pennsylvania, South Carolina, Texas, and Wyoming.

It would seem from the existing conditions that the hope of the future lies in the matter of educating the general public to a better understanding of the evils that exist at the present time as a result of such conditions, thus making it possible to eliminate such evils by proper state legislation, and upon the other hand to raise the standard of the science of refraction and the adoption of a uniform method of refracting among ophthalmologists, thereby enabling them to arrive at the same conclusions in a given number of cases.

I desire to report three cases from a number of others recorded merely to emphasize the relation of eye strain to reflex nervous conditions:

Case 1.—W. H., a merchant, aged thirty-seven and with a negative family history. For the past ten years prior to his recent visit to my office he had been a sufferer from violent attacks of headache periodically. These attacks would begin in both temples and extend to the occipital region, accompanied by muscular spasm in this locality. He had also suffered from attacks of indigestion, together with flatulency and disturbed heart action. Up until the time I first saw him he had been taking the usual headache remedies, including patent "dope," and at times had to resort to the hypodermic use of morphia. I hardly suspected the first time I examined him that eye strain could be responsible for all of his trouble, but subsequent results proved this to be true. After the use of a cycloplegic I found as follows:

O. D. + 2.25 Sph. + .25 Cyl. ax. .130.
O. S. + 2.50 Sph. + .25 Cyl. ax. .45.,

which was ordered for constant use. This gave complete relief from his distressing symptoms, and since, to keep him free from discomfort, it has been necessary only to reduce the strength of his spherical correction to a slight extent.

Case 2.—A young high school girl, aged fifteen, was referred to me by a physician from a neighboring town. I was called to see her at her room in the hotel shortly after her arrival, as she was unable to come to my office at that time. I found her suffering from spasm of the diaphragm and from choreic movements of the muscles of the neck and pharynx, the seizures being clonic and characterized by jerking the head forward with each onset. I could find no systemic cause for the trouble. She was well nourished and her family history was negative. Upon questioning her with reference to any excessive use of her eyes for near work, I learned she had recently been studying hard to make her grades, frequently sitting up until midnight to complete the preparation of her lessons. I thereupon suspected some visual defect as the cause of her reflex symptoms. She was accordingly given a temporary nerve sedative and requested to remain in bed until the following day, at which time she was directed to come to my office for further examination. After the use of a cycloplegic I found her static error to be as follows:

O. D. + .50 Sph. + .50 Cyl. ax. 90.
O. S. + .50 Sph. + .50 Cyl. ax. 90.

This was ordered for constant use with instructions to return in ten days, at the expiration of which time I found her completely relieved of all her nervous symptoms. She was allowed to continue in school, and so far as I can learn she has had no return of the trouble, it being over two years since the lenses were ordered.

Case 3.—Mrs. P. H., music teacher, aged thirty, of rather nervous temperament, came to me in February last for relief from eye strain. She gave the following history: She had been extremely nervous for the last seven or eight years. There were times when she could scarcely endure the nervous tension. Would go to bed early at night to seek relief from intense weariness and pain in the head and in the muscles of the neck, but often failed to obtain sleep, remaining awake until daylight. She had frequent attacks of unconsciousness and convulsive seizures and never went longer than a week without a severe attack of sick headache. She was fitted with glasses when a child, but could not wear them with any degree of comfort and therefore they were soon discarded.

After the usual cycloplegic her refractive error proved to be:

O. D. + 2.00 Sph. + 1.00 Cyl. ax. 90.
O. S. + 2.00 Sph. + 1.00 Cyl. ax. 115.

Full cylinder correction with some reduction in the strength of the spheres was ordered for constant use. Being anxious to learn what relief she had obtained from her glasses, I wrote to her recently with reference to her condition and received the following reply:

"Have had only one nervous attack since I began to wear my glasses. I retire early and soon fall asleep, not waking until aroused. I almost dread to get up in the morning, feeling as if I were still behind in my sleep, since I lost so much during the years of my suffering. Have had very few headaches and have taken very little medicine. I have given six music lessons today without suffering any from my eyes."

Strange to say this patient had been treated by several physicians during the time she suffered from these nervous reflexes, and none of them ever suspected eye strain as being the cause of her trouble.

To conclude, I wish to say I am not unmindful of the fact that in presenting this paper before this Section I may seem to reflect upon your intelligence, since, no doubt, you have already observed that I have brought you no facts of which you are not aware, but I have desired simply to lay stress upon conditions comprehended by the title of my paper which I deem of paramount importance. If I have been able sufficiently to emphasize certain phases pertaining to the work of the refractionist, and if such emphasis may lead to a serious consideration of the subject, I

shall feel that my efforts have not been wholly in vain.

DISCUSSION

Papers of Drs. Crawford and Scott

Dr. H. H. Briggs, Asheville, N. C.—On reading the title of Dr. Crawford's paper my first thought was, why this antiquated subject? Has not the matter of the use of cyclopegics been definitely decided? Are we not all of one accord in their favor? However, I found it not only most interesting, but instructive. From it one may gain the consensus of opinion of American ophthalmologists on this question. You find from the expression given, to which we have just listened, that there are yet differences of opinion, but that they are not as to the principles involved so much as the means by which refraction is to be determined. From these answers I would judge that there is much difference of opinion as to the relative number of cases of so-called ciliary spasm, with its resulting latent ametropia, or else a difference as to the ease and means by which the degree of spasm and the amount of the latent ametropia may be determined. The great majority of us agree on the following four points:

1. That cases of ametropia complicated with a spastic condition of the ciliary muscle, should have a cycloplegic and preferably atropine.
2. That all cases of latent ametropia should be so treated.
3. That all children should have a mydriatic and that those having large errors of refraction, either hyperopia or astigmatism, should have atropine.

To me there seem to be the following reasons why a mydriatic or cycloplegic should be used in routine work:

1. It temporarily paralyzes the ciliary muscle, places the accommodation in abeyance and renders manifest the ametropia which otherwise would remain latent.
2. It, furthermore, by this cycloplegic eliminates the influence which the intraocular muscles may have over the extrinsic muscles, when the latter show evidences of phorias or tropias.
3. It produces physiologic rest of the eye.
4. It tends to reduce any retino-choroidal disturbance or congested condition which may have added to the asthenopia or may have been caused thereby.
4. It should be used in all cases where examination of the media and fundus is necessary.

Cycloplegia.—In determining refraction there are several unknown factors, depending principally upon the normal and abnormal action of the ciliary muscle:

1. There is a normal tone for this as for all other muscles in the body, estimated to be equivalent in the emmetropic eye to about one diopter.
2. There may be ciliary spasm ranging from nil to two, three, five or more diopters, depending upon the ametropia, heterophoria, inflammation, etc.
3. There is the manifest condition which is usually easily determined by the tests, the one of last resort and probably the most accurate being that of the test case. The normal tone of the ciliary muscle is not very variable and is practically a constant value except in cases of long standing latent hyperopia or astigmatism. To allow for this we prescribe a lens of less strength than the static refraction calls for, varying from one-half to one diopter, depending upon the degree of ametropia. The second and principal unknown factor is that due to ciliary spasm with its train of asthenopic symptoms thoroughly diagnosed, treated and cured only by the use of mydriatics, the application of which has made the name of Donners immortal and their routine use a God-send to humanity.

Of the seventy answers to the question sent out by Dr. Crawford, seven were negative as to the use of mydriatics. Five of these are modified by such expressions as "when I do I use atropine." One states "except in strabismus and spasm of accommodation." Another, "except in five per cent. of my cases." Another, that he has not used a mydriatic in several years except occasionally; that he can give his patients better results. It seems to me that the use of a mydriatic can at most be an additional means for determining refraction, and I hardly see how better results can be obtained without its use since its employment does not preclude the use of any and all other means or tests. The answer of my friend, Dr. Valk, who recently has unfortunately passed, is very interesting. In part, it reads thus: "It is not a question of shall we use a mydriatic, but who shall use them?" He is evidently speaking of oculists, and it seems to me that some of our states (unfortunately not all) have answered this question by enacting laws allowing a legal practitioner of medicine only rather than opticians and optometrists (should there be a distinction?) or others untaught in anatomy, physiology and pathology of the human system, to use such powerful poisons as cycloplegics represent. The next sentence reads: "A doctor should know when a mydriatic was necessary and when otherwise. That the use of atropine or any other drug depends on the skill and the experience of the examiner." This is the crux of the whole question. Unfortunately he does not tell us how to know when a mydriatic is necessary, nor have I been able to find it in any ophthalmic literature. How the use of atropia or any other drug depends upon the skill and experience of the examiner is equally baffling. The next sentence coming from such an authority is also interesting. "That physicians should use atropia in the correction of refraction in people under thirty years of age, until they fully understand and know what they see in the pupillary reflex and what the curvature of the cornea will tell them, and how to put these findings with the ophthalmoscope." My observation is that after the physician has used the mydriatic and studied the pupillary reflex, together with all other means of determining refraction, that instead of attaining such acumen and knowledge or refraction that he can dispense with a mydriatic, he learns that it furnishes the most reliable data, and in many difficult cases becomes the *sine qua non* in thorough refraction.

His last sentence, reading as follows, is commendable: "It is by what we know and understand from the objective tests" (and I would add

subjective tests), "not one test, but the way they all will dove-tail, that we can know what the true refractive condition is."

Personally, I dislike the addition of cocaine to a mydriatic because it ofttimes will roughen the cornea to the extent of reducing the vision during the test. I should like to warn against the use of mydriatics in any eye until symptoms of possible glaucoma are eliminated, especially increased tension and large pupil, or a shallow anterior chamber. I have never thus far had the misfortune to induce glaucomatous symptoms by the use of a mydriatic. To me the use of mydriatics in refraction marks the era of rational refraction and places it on a high pedestal, compared with that of premydriatic days, and the work now done by even the best so-called optometrists.

It is the thorough knowledge of the action of mydriatics and their routine employment in estimating refractive errors, together with the legal permission for their use, that differentiates our refractive work from that of the optician, optometrist and spectacle vender.

Dr. E. H. Cary, Dallas, Tex.—Dr. Briggs has covered the subject very well in a very fair manner; but when so many of us have had to fight and to beat the attempt on the part of untrained men to get some special recognition from state law, it seems unfortunate nowadays everywhere we go that some paper should come up that could be misunderstood. I think we can all agree pretty definitely as to the value of the mydriatic. But whenever any paper can be read, can be misunderstood, can be produced in the legislative halls of the country when men are asking for some kind of recognition whereby they shall be called doctors, it seems unfortunate. In other words, I want to rise to go on record—to have this Section go on record sufficiently to let it be understood that a mydriatic is really an essential thing, and that no man, it does not matter how acute his senses, how clever he may be, no man can guess about a thing and absolutely know it. You know there is such a thing as knowing, and such a thing as guessing. I am about as good a guesser as anybody if I want to guess, but I don't want to guess. When an individual comes to me to know positively what is the trouble, by the gods, I ought to utilize that means at hand which makes it absolutely positive, when I finish, that such and such is the case. However much I may want to modify that finding based upon the knowledge of the particular individual or case, I am not going to put in the hands of the untrained and unskilled any statement which gives them ammunition to go to the legislature and get a statutory law that makes it possible for them to be called doctors.

The most unique thing about a people who have been forced to suffer for years is that they can not differentiate very easily as to who is a doctor and who is not a doctor. Intelligent people frequently fail to understand the difference between an optician and a doctor, and if you give him a high-sounding title, for instance, as optometrist, they can not tell at all. It is an outrage, it seems to me, upon humanity to create a statutory title in which they can not themselves differentiate as to what is meant.

Dr. Clifton M. Miller, Richmond, Va.—I have been through two fights in the Legislature of Virginia on this subject and was beaten in the second one. In the first one we beat them out, and we have had dumped on us a lot of half-baked creatures that are posing as doctor of this, that and the other, with an examining board and all that sort of thing. I think we ought to go most emphatically on record as requiring a mydriatic. Under the best of circumstances diagnosis is difficult. I don't care whether it is a pathological state or the intrinsic muscles or what the condition; we owe it to our patients, if we are going to clear this up for them for the purpose of making our living, or if we are going to build up our reputation in the dispensaries, we owe it to them to make every proper diagnosis we can.

Spectacles wrongly used are a rank poison, and why are we going to let people prescribe and issue these poisons when they should be used properly? There is no more reason in the world why the legislatures of this country should allow spectacles to be used without proper prescription than that they should allow morphin or anything else to be issued. In many of these cases which the doctor has referred to we see instances of digestive troubles and internal conditions due to the auto-intoxication which the digestive trouble is causing. I have them referred to me almost every day, the physician saying: "I am sure eye strain is at the bottom of these digestive symptoms." If we are dealing with a patient like that we owe it to our patients to give them everything possible in the way of diagnosis that we can.

Dr. G. C. Savage, Nashville, Tenn.—If my friend from Richmond means by the expression "half-baked" that opticians, not having medical knowledge, are half-way prepared for their work, I think he compliments them.

The most absurd thing that I have known of recently has come from New York, and that is that the ciliary muscle has nothing to do with the accommodation at all; that accommodation is effected wholly by the extrinsic muscles. Next to that in absurdity, and almost above it, is that other thing that comes from New York and some other high places that the mydriatic is not necessary in the work of refraction. I abominate—I am afraid to go much further for fear I might use a stronger word—but I abominate the fact that civilized states will allow men—will even licensed men—to do work of that character when they are not qualified for it at all.

It seems to me that the thing that should be done is for every medical organization—state, national or otherwise—to hold that refraction is part of the practice of medicine, and no man not qualified for the practice of medicine should undertake this work. No man can properly do this work for young people without a mydriatic.

You know we have opticians in our part of the country, refractionists, optometrists and all sorts and kinds; and these like to read from the pen of an oculist that a mydriatic is unnecessary. When people come to me and say: "I have been to So-and-So and have not gotten what I should get," I say: "You knew that they were going to guess when you went there, didn't you? Guess-

work is as good as any when it hits, but it rarely ever hits." Suspending the accommodation of these patients shows them at once how little help, if any,, were the guesswork glasses given without a mydriatic. They can detect the contrast between such lenses and the proper correcting lenses. Very often patients with hyperopia will come with minus lenses that have been given them by a so-called refractionist. No oculist can say: "My skill has grown to such an extent that I can do refraction work independent of enforced rest of the ciliary muscles." Why, there is no man on earth who can do it. We can not express ourselves too strongly on this line.

Dr. R. R. Daly, Atlanta, Ga.—The use or avoidance of atropin and homatropin is purely a medical question. To say that either should be used in making refractions because thereby other than physicians would be prevented from measuring eyes is strange doctrine. It should not be advanced even to influence protective legislation.

Refraction consists in measuring the depth of the eye in all its pupillary meridians, plotting the corneal and lenticular curves and determining the action of the ciliary body. The sum of these so far as they influence the passage of light into the eye is concerned, is expressed in the lens needed to correct an ametropic eye or in the diagnosis of emmetropia.

My experience is that one can measure the action of the ciliary body far better when it is in activity than when it is paralyzed. If I wished to measure the dynamic force of an arm, I should not inject conium into that arm as a condition precedent. For the same reason, I should not undertake to measure and determine the action of the ciliary muscle when under the influence of a so-called mydriatic.

When the action of the ciliary is supposed to be set aside for a time and then assumed to be one diopter as we do when the mydriatic is administered, it is worth while to test whether there is complete cycloplegia. If this is regularly done, as it may be by super-imposing the dynamic method upon the cycloplegic and asking the patient to look first at a letter one meter from his eye and then at infinity, the observer will see a change in the retinoscopic picture which will convince him that in many instances there is not complete paralysis of the muscle and that his findings are confused by a measurable fraction of a diopter. I have demonstrated this many times before I could bring myself to abandon the method and learn to measure things as they are. There was too much guesswork to it. Sometimes the mydriatics became cycloplegics; more times they did not. It is needless to say that the standard solutions of both homatropin and atropin were used.

When the dynamic method is properly used and the patient led to focus his eyes upon letters held a meter from him, the observer can tell whether the focalizing is correctly done by noting the color and action of the pupil. Only a brief experience is needed for the exercise of this judgment. Then the retinoscopy proceeds as in the other method except that its findings, below the age of forty, are direct and positive. The shadows are easier to see, once they have been learned, than are those of the dilated pupil because they are entirely central. It must be remembered that the focus can not be held at a meter or at any other spot for a long time any more than a man can hold his hand perfectly quiet for an indefinite time, but the rest period needed is brief and after a few seconds the study may be renewed. Indeed, the time taken in changing a lens in the trial frame is usually enough to recuperate the muscle. The work takes time. Checking up is required. Patience and perseverance are needed on the part of the doctor and patient. It is not a royal road to instantaneous measurements and rapidly acquired fees. The patient may be greatly fatigued at the first sitting and another day may be chosen. It is not the device of the quack and glasses merchant. It is the method by which the eye can be led to tell its whole story accurately.

When it has been completed, the patient is at once ready for the test case and the doctor is in possession of all the knowledge an objective examination can give him. In my experience the test case proves my work. Meantime the patient is saved the annoyance of the mydriasis, the loss of time and protected from the injection of a foreign body. This last might well be the ideal of every physician whenever it is possible to realize it.

I make the dynamic tests at ages all the way from six months to the last days of presbyopia, and it is rare, indeed, that it becomes necessary to resort to mydrasis with its guesswork and its return after many days to the test case and explanations.

I have at my clinic between thirty and forty children less than three years of age under observation, and one of them in my private practice was six months old when examined. They are too young to need glasses, but not too inattentive to permit the approximate determination of their ametropia. As children have grown older their conditions have checked up and made me confident that my tests were accurate.

I am constantly watching the results of all my refractions as far as possible and barring the errors which are the badges of our humanness, I know what I am doing.

Dr. Albert B. Mason, Waycross, Ga.—I cut down the area of the dilated pupil with a little device I have described two or three times within the past four or five years. (Drawing on the blackboard.) You gentlemen can see that I am a very excellent artist! These shorter lines represent the rays of light entering the normal pupil. Let these longer rays represent rays entering the dilated pupil. When we refract this eye through the dilated pupil, we do not refract the central rays, but the peripheral, because they (the peripheral rays) are in the majority. The area of this (illustrating) normal pupil will average 12.57 sq. mm. The average diameter of the dilated pupil is 8 mm. and the average area of this pupil (illustrating) is 50.27 sq. mm., which makes the average area of the peripheral rays 37 sq. mm., so that we have the area of the peripheral rays three times that of the normal pupil. If we refract the dilated pupil, using the pupillary disc to cut off the peripheral rays and proceeding in the usual manner, we will get an absolutely mathematically correct measurement of the refraction.

By using this method we can usually "split the quarters;" we can get our patients to accept a 37 for a 25, 62 for 75, and so on. Those of you who have been doing refraction for years and years know there are numbers of cases where the correction of 12/100 of a diopter will stop the eye strain.

Dr. A. L. Whitmire, New Orleans, La.—I would like to ask the doctor who has just spoken what he does about the lens' changing its convexity while this is going on, and shortening and lengthening the focus in the macula region.

Dr. Mason.—It makes no difference whether the lens is flatter in the center or the periphery. The thing to do is to cut out the peripheral rays, thereby cutting out spheric aberration, whether negative or positive; get the pupil you refract under a mydriatic the same size as the pupil your patient is using, which is 4 mm. You skiagraph the central 4 mm. of the dilated pupil, watching for the shadow in the very center; so why not refract the same size pupil. The principle is the same.

Dr. George H. Price, Nashville, Tenn.—I believe, from the discussions which have preceded, that it is generally recognized that a mydriatic is a necessity and that anything short of a mydriatic in a large majority of cases under forty-five will fail to develop the amount of trouble present in the dioptic system.

It is a fact that the eye is the only organ of the entire human organism that can be corrected in its defects for variations from the normal upon a mathematical basis; the only one. If a concern were to turn out optical instruments, that concern would go upon the presumption, or the public would, that the instruments were correct. If they were not correct, and very few physical instruments are absolutely correct, physical correction and the corrections necessary to cure these defects are noted when the instruments are sent out, so for physical defects of instruments are noted; that correction can be made, in the use of such instruments.

I resort to the use of a mydriatic. I do not use atropia except in children. I have never found a great deal of difficulty in producing a suspension of accommodation with homatropine.

In regard to the paper of Dr. Scott, that seems to have been a little bit overlooked because of the other paper and of the great importance of the other, an importance due to the fact that it has a bearing of such very wide range, which we recognize and are ready to meet.

Dr. E. L. Roberts, Nashville, Tenn.—I am in favor of mydriatics, of course, because, while we can guess pretty well sometimes, we can not be so sure as we can with a mydriatic. However, there is something else to do, if a patient comes in to see you today, besides simply put glasses on him and dismiss him.

We are going to continue to have the optometrist, the optician, the manufacturing optitian, etc., with us, and we have two reasons for this. One is that our medical brethren in the general practice send patients to them. It is my belief that they send them there quite often. I know some leading practitioners in my town who not only send patients there, but go there themselves. That being the case, those men will continue to get business. They will get business for another reason: We take a patient; we refract him with a mydriatic, and we can measure his refraction with that mydriatic, but we do not know, when we have measured his refraction and measured it accurately, whether or not he is going to tolerate the correction that the mydriatic would indicate.

When I have a patient who really wants to be attended to correctly, I examine his eyes and tell him he has some trouble, but I give him to understand that I may not be able to cure that trouble in a day. I may do that at the risk of making an impression on him that I am doing a little guessing myself, and sometimes perhaps I am. I say to him: "You have a case needing glasses; it can not be corrected in an hour, but you must let me find out what you need and give you the remedy. If I make the mistake of letting him think that I have done all I could at the first visit, next thing I know he is going to an optometrist. The optometrist asks him if I used drops, and upon receiving an affirmative reply, he knows that he has a decided advantage over me, for he has my results in examining with the mydriatic and the patient's experience in wearing the correction that I gave him. He then goes over the case carefully with the probable result that the patient gets much more satisfaction from his glasses than he got from mine. The patient naturally thinks that the optometrist knew his business and that I did not, being wholly unaware of the fact that the optometrist has made only a slight change in the glasses and that his conclusions were based almost wholly on what I had found and the experience the patient had had with my glasses, and not on the optometrist's original investigation at all.

So, while we use mydriatics and do our refraction under them, let's see our patients afterward, too; let us see them without the mydriatics, and let us examine them carefully and watch them, and impress upon them the importance of the conditions with which we are dealing.

Dr. Crawford (closing.)—I did not intend to say anything at all until Dr. Cary accused me of being opposed to mydriatics. His information is wrong.

It seems from what has been said that the greatest fear in this matter is the optician. Never fear him for a moment. Simply do your work well. Use the cycloplegics when necessary, but don't try to "muzzle" your patients by teaching them that "all eyes must have the drops" before they can be properly tested for glasses.

Southern Medical Journal
JOURNAL OF THE
SOUTHERN MEDICAL ASSOCIATION
Incorporating Gulf States Journal of Medicine and Surgery and Mobile Medical and Surgical Journal

Published monthly. Price $3.00 per year; 25 cents the single copy.
Address Southern Medical Journal, Empire Building, Birmingham, Alabama
Entered at the Birmingham, Ala., postoffice as second-class matter under Act of Congress, March 3, 1879

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Vol. X SEPTEMBER 1917 No. 9

EDITORIAL DEPARTMENT

THE PATRIOTIC MEETING IN MEMPHIS

The Atlanta meeting of the Southern Medical Association last year, with an attendance of 1,500 members, or more than 2,000 if the physicians' wives, the exhibitors and visitors are included, marked the high level for medical gatherings in the South. When Memphis, after an interesting contest with Chattanooga, Asheville, Baltimore and several other cities, won the 1917 meeting, it was predicted that she would make the effort to eclipse her rival, Atlanta, in handling the largest convention of Southern doctors that has ever been assembled.

Immediately after the Atlanta meeting the Memphis physicians went to work preparing for next November; and in January when President Eve, with the Secretary and Business Manager of the Association, went to Memphis, plans had been made for entertainment which, had they been carried out, would give but little time for scientific work. They were reminded of the action of the Council which limits the entertainment to one evening reception, but it would have been difficult to keep the generous and hospitable doctors of Memphis from providing elaborate social attractions for the meeting had not war made it in bad taste to be extravagant in entertainment.

There has been no let up, however, in the preparations for the November meeting, because the Memphis men say that they will make it a success despite war (or its synonym according to Sherman) and "high water." The New York meeting of the American Medical Association in June was one of the best in its history; and Memphians, who, while visiting New York, are accustomed carelessly to say: "You know, this town reminds me of Memphis," can and will make a success of a medical meeting in Tennessee's metropolis even in war times.

Patriotism and war medicine and surgery will be the central themes for the November meeting; and Memphis is the place for such a gathering, because civic pride and love of country have been developed to the nth degree in that city. The ease with which Memphis organized a base hospital unit, the fact that more than 25 % of her reputable physicians have volunteered for service in the Army, and the remarkable work for the Red Cross which she has done, are evidences of the patriotic spirit of the medical profession in that wonderful city.

Whenever two or three doctors are gathered together the conversation is not about another doctor, but about the war. Nearly every doctor expects to go to the war before it is over and all want to know everything possible about the Reserve Corps and the regular Medical Department of the Army and Navy. They are also interested in the scientific side of military service.

Major Noble, of the Surgeon-General's Office, and Colonel Goodwin, of the British Army, who is on duty with Surgeon-General Gorgas, Rear Admiral Grayson, and other men celebrated in military and naval circles, will be in Memphis to give us first-hand information about matters

pertaining to medical service in the Army and Navy. Surgeons and physicians who have seen service in France will also be there to tell about the medical and surgical diseases of the war. The regular scientific papers and clinics will be up to the usual high standard of former meetings of the Southern Medical Association.

With so much of interest to physicians concerning war matters, and with the unbounded prosperity that will come to the South with the gathering of this fall's crop, there is every reason to hope for even a larger attendance in Memphis in November than in Atlanta last year; and all conditions seem propitious for a scientific and patriotic meeting that will long be remembered by the doctors of the sixteen Southern states.

THE EMOLUMENTS OF MEDICAL MILITARY SERVICE

This JOURNAL and others have made many appeals to the patriotism of physicians to join the Medical Reserve Corps of the Army and Navy, and much has been said about the sacrifices that have been, and are being, made by the members of the medical profession in their desire to serve their country; and the altruistic spirit shown by medical men in the present emergency proves that they are living up to the obligations and opportunities of one of the noblest of professions. There is, however, another side to the question, because in giving his services to the Reserve Corps of the Army or Navy the physician receives many things that at least partially compensate for his sacrifices. It, therefore, may be advisable to discuss the emoluments of military service, or what some may call the selfish viewpoint.

It is undoubtedly true that the great majority of physicians are making financial sacrifices to accept commissions in the Army. The man who earns $10,000.00 a year and upward usually allows his family to live on a plane that makes it seem impossible for them to exist on the salary of a medical officer in the Army; and in order to serve, many physicians and their families have given up handsome homes, automobiles, handsome clothes and other luxuries. This training in self-denial in itself is worth something to a man and his family, particularly to his children, who are sometimes ruined by a life of ease and luxury.

The salaries of medical officers in the Army range from $2,000.00 per year for a first lieutenant, $2,400.00 for a captain, to $3,000.00 for a major; but most of it is net—no office rent, no automobiles, no assistants, no stenographer, no servants and no other expenses incident to the practice of medicine and surgery. Some physicians have complained that they can not live on these salaries and pay their life insurance, but insurance premiums will be taken care of by the companies during the period of war.

The medical officers of the regular Army, and their families, have lived comfortably on these salaries for many years. THE JOURNAL is not arguing that it is sufficient compensation for the services of high-class physicians in the Army or for those who are volunteering, but merely mentions it as a fact that by practicing rigid, or even reasonable, economy in their expenditures, a family can live on the salary of a medical officer in the Army or Navy.

Aside from the opportunity to serve in a patriotic cause, what does the Army give in return for the sacrifice?

The Army, with its training camps and the opportunity for experience, not only in treating wounds, but in all the various branches of medicine and surgery, is the greatest post-graduate medical school in history. In general surgery, orthopedic surgery, plastic surgery, neurology, Roentgenology and opththalmology and in many

other specialties the leading experts in the country are giving their time to training physicians for Army work.

In most post-graduate medical schools the physician only sees the work of others, but in the Army he will have the opportunity to study and treat the cases himself, whether operative or otherwise; and at the same time have the privilege of consulting with the best medical talent in the world. There is not a physician, whether he be a general practitioner, a surgeon or a specialist in any line of work, who enters the Army who will not come out of it better prepared to practice his profession.

The prestige which Army service gives to physicians will be worth much to them after the war is over. Doctors who refer patients to specialists, and laymen as well, understand the educational advantages of the Army. A banker recently said to the writer: "The doctor who goes to the war will have a great advantage over those who remain at home, because he will have had such a vast experience in treating the sick and wounded, and he will, therefore, be better prepared to look after his patients when he returns to his practice."

The people of a country that goes into war with no selfish motives, but for the noble purpose of fighting for democracy and for fair dealing among all nations, will appreciate the patriotism of the men who serve for them. The way in which the soldiers who served in the Civil War have been treated suggests what may be expected after the present war ends. After the War, the veterans were given the choice positions in all walks of life. Senators, congressmen, governors and all public officials down to bailiff, who were elected by popular vote, for thirty or forty years, came from the ranks of veterans.

The doctor, while not in politics, is dependent to a great extent upon personal popularity, and Army and Navy surgeons after this war will be favored in many ways. All of us know how we looked up to and revered the veterans, the men who wore the gray, or the blue, as the case may have been, and after this war is over it will be pleasant to think that we may be so respected by our friends and their children.

One eminent physician who is over age facetiously remarked that "after the war the fellows who went will do all the talking, while those who stayed at home will not have anything to talk about." There is no question that the men who serve in the Army will be drawn together by strong ties, that they will be looked up to and revered as patriots, and that through the veterans and other organizations they will form a select class which will be envied by those not so fortunate.

A prominent internist said that the impelling thought with him in deciding to enter Army service was "What can I say when my boy or girl asks, 'Daddy, why did you not go to the war?' " For a man's own self-respect, and to hold that of his family, and to maintain the esteem and confidence of his friends, it is worth while making the sacrifice to go to war. The public, generally, understands the great need of physicians for the Army, and the sacrifice of those who go will be appreciated; while those who ought to go, and who do not, will lose the respect and confidence of their clientele.

A very good reason for entering the Reserve Corps now is that those who have had the training in the medical officers' schools, or who have had experience in the various Army hospitals, will be given, and rightly so, the most desirable appointments, and preference in promotion.

The patriotic motive is enough to make physicians give up the comforts of home and the emoluments of a successful practice; but it is also well to consider what some may call the practical side of the

question, or what others call the cold selfishness of the situation. Whatever may be the impelling cause for the one to enter the Reserve Corps of the Army or Navy, in many ways he will be the gainer by joining the ranks of patriotic physicians who give up many things to serve their country; but in so doing, they gain much that is satisfying to the human heart, and much that will make for success after the victory has been achieved.

DRAFTING MEDICAL STUDENTS

The attitude of Provost-Marshal General Crowder regarding the drafting of medical students is disappointing. He no doubt is perfectly sincere in his opinion that medical students who have been drafted into the Army should be furloughed to enable them to continue their studies until graduation.

Instead of acting upon expert opinion, General Crowder announces his belief that "medical students should continue their studies to the best advantage in the field under the Medical Corps of the United States Army." His position is manifestly erroneous, because medical students have not the foundation to learn from practical experience until they have had at least three years of study and laboratory work in the theoretical branches of medicine.

General Crowder has proved an efficient administrator in charge of the selective draft act; but he has not had any training in medicine, and therefore knows no more of medical education than a physician knows of military tactics. He should not express views about a professional matter on which he is not competent to form an opinion.

President Wilson and Secretary Baker, in preparing for war, have followed the advice of the general staff of the Army, because it is composed of men who have been trained in military matters; and the entire country has applauded them for so doing. When matters come up affecting the Medical Corps of the Army, the medical colleges, and the health of the civil population, line officers should act upon the expert opinion of the Surgeon-General and his associates.

General Crowder insists that but few medical students will be affected by being drafted in the Army; but if the experience of the College of Physicians and Surgeons in New York applies throughout the country, 20% of the students in the medical schools will be taken from their work and drafted into Army service. It is therefore a serious situation, because there is very great need of educating young men to take the places of the physicians who have entered Army service, or to relieve the physicians at the front and let the older men take care of the health of the civil population.

The hospitals of the United States are suffering already because the internes and house physicians and surgeons have found Army life more attractive than hospital work. Many hospitals, insane asylums, and charitable institutions have lost from one-half to two-thirds of their medical staff, and the small hospitals and private sanitoriums that have had one or two young physicians as surgical and laboratory assistants now have to go without them.

If the war continues for any length of time the civil population of the United States, as well as our soldiers, will suffer severely from the lack of medical attention. Great Britain and France are calling on us to send them physicians and surgeons not only to care for the sick, wounded and dying soldiers who are fighting our battles as well as their own, but to supply the needs of the civil population.

Colonel Goodwin, of the British Army Medical Service, in a recent article,* in speaking of the serious shortage of med-

*Journal of the American Medical Association, July 14, 1917, p. 121.

ical men in Great Britain, says that in some districts in England there is only one physician to every 5,000 or 6,000 inhabitants. Think of one physician attempting to look after the medical and surgical needs of a town or city of five or six thousand people.

If we have a long war with two or three million men in the field, there is no question that the inhabitants of the United States will suffer seriously, because there will be too few physicians in this country properly to treat the sick, not to mention the fact that the public health work is already being neglected because many physicians have given up that branch of medicine to join the Medical Corps, or Reserve Corps, of the Army.

Something must be done to relieve the situation. If the Provost-Marshal General can not be persuaded that medical students should not be drafted as privates in the Army, Congress should be appealed to for a law exempting them, or for legislation providing that young men may be members of the National Army, detailed to serve their country by studying the profession that is most needed to administer to the wounded soldiers and to the sick in civil life.

In order to encourage young men to study medicine and to make medical students and the faculties of medical colleges feel that they are not "slackers," it might be well to commission the members of the faculties who stay at home and teach medicine, as officers in the Army, on furlough without pay; and to enlist the medical students as privates and let them all wear uniforms so that the public may know that they are serving their country as loyally and as efficiently as those who are with the Armies in France. The medical colleges of the country are as truly training camps for medical officers of the Army as those at Fort Oglethorpe, Fort Benjamin Harrison, or elsewhere. The only difference is that one is training graduates while the other is equipping undergraduates—both are preparing much needed men for service as surgeons in the Army.

GERMAN PROPAGANDA TO MAKE SLACKERS OF DOCTORS

The German method of giving out misinformation regarding war matters, to dampen the ardor of those who desire to volunteer, has extended to the ranks of the medical profession. Many misstatements regarding the mortality of British and French medical officers have been sent out by German emissaries; but the origin of this misleading propaganda regarding the dangers of medical service in France has been so well concealed that many have been deceived; and it has had its effect in preventing some physicians from asking for commissions in the Army.

On yesterday a sincere and honorable physician said to the writer: "No, I am not going to the war. I don't propose to be shot at by the Germans. Just look at the number of French and English surgeons who have been killed in France." When asked how many surgeons had been killed or from what source he obtained his information, he could not tell; but he and many others regard Army service for physicians as almost certain death.

He was surprised when informed that of 12,000 surgeons in the British Army only 195 had been killed throughout the three years of the war up to June 23 of this year! The writer does not know the statistics, but from the number of news items that appear in medical journals about automobile accidents, he will venture to assert that more physicians have been killed by automobiles and trains in the United States in the past three years than have been shot by German shells.

Of course, there is the element of danger in serving as a medical officer in the Army; but a man with a heart in him is not going to see brave soldiers, who

have been wounded fighting for their country, suffer for hours on a battle field without giving them relief. The man who is not willing to run the risk of losing his life to save the lives of others is not worthy to practice medicine.

One of the attractions of war is the opportunity to become a hero—not for the plaudits of the multitude, but for the glorious feeling that one must have to know that he has the courage to risk his life to save others, and for the satisfaction of knowing that he is performing a man's duty in the service of his country.

But for the timid, and for the physicians, who have wives and children dependent upon them, it is just as well to know that the risk of one's losing his life as an Army surgeon is extremely small; and as for the surgeons of the Navy it appears to be as safe to be on one of Uncle Sam's battleships as it was in the Spanish-American War, when an American war vessel was said to have been "the safest place in the world."

PHYSICIANS' UNEXPIRED LEASES

No other profession is being called upon to make the same sacrifices as the medical profession; and none is responding more nobly to the call of duty. That this spirit of sacrifice is not shared by all is shown by the fact that a number of physicians, who have enlisted for service during the present war, have been compelled to pay, or to assume responsibility for payment of, the rent on their offices and dwellings after they have left home for duty in the Army. In many instances patriotic landlords and property owners are releasing physicians from their rent contracts, but unfortunately there are some who feel that every one else except themselves should make sacrifices to win the war.

The Chicago Rotary Club has information that a great number of physicians, who have received commissions in the Army or Navy, are embarrassed by unexpired leases. With the true spirit of Rotary, which means service, the Chicago Rotarians are making the effort to see to it that physicians, who leave their practices to go to war, are relieved from their rent contracts.

Mr. R. R. Denny, President of the Dennos Food Sales Co., Chairman of the Physicians' Lease Committee of the Chicago Rotary Club, is making the effort to interest the Rotary Clubs throughout the country in this movement to protect physicians from heartless landlords. He is sending out letters to 20,000 physicians throughout the United States asking for information regarding instances where doctors have joined the Army or Navy and their landlords have refused to cancel their lease contracts. Physicians who know of such occurrences should fill out the cards sent them and mail them to Mr. Denny; or if others, who have not received cards and know of such instances, will write the facts to the JOURNAL, the information will be forwarded to Mr. Denny.

This important matter should also be taken up by the medical societies. By united efforts we may get landlords and property owners to see that they as well as physicians should make some sacrifices to hasten the end of this dreadful war. Every physician who enters Army service means that a number of sick or wounded soldiers can be cured and go back to the front if they have proper medical attention. Property owners who rent homes or offices to physicians should encourage them to go, and "do their bit" for their country by making it easier for them to leave their work.

HASTE IN SURGERY

The impression usually received by the foreign tourist in our country may be summed up concisely by the one word "*hurry*," and not unjustly so, for it is

exemplified by our speed mania with regard to autoing, the craze for get-rich-quick investments, and even the steadily-growing popularity of the quick lunch counter. Not alone do we find speed playing a prominent part in our daily life, but in many instances it has actually obsessed the minds of the surgical profession.

In every community there are those who owe much of their patronage to a reputation for speed in the operating room. And the reason is obvious,—for the more rapidly an operation is performed, the more the convalescent and his friends marvel over the "skill" displayed by the surgeon and the more critical do they become of the efforts of those who do not seek to break a record.

What surgeon has not had the near relatives of a patient just before operation address him imploringly: "Doctor, please do the very best you know how!" But never does he hear them say: "Doctor, please do the very quickest work you know how!" However, afterward the same patient and family will compare notes with other convalescents and their friends and boast of the small number of minutes utilized in an appendectomy, hysterectomy or thyroidectomy, for example, never stopping for one moment to ask: "Was the appendix, the uterus, or the thyroid the main offender?" or, "Might not a gastric or duodenal ulcer, gall stones, or a Meckel's diverticulum have been the true cause of the symptoms?" Likewise they little realize that a few minutes more here and there in closing over, say, the raw surfaces of the broad ligaments or the mesoappendix might have saved years of future discomfort and pain from adhesions.

Who is the better surgeon in this particular instance, the man who for an admittedly diseased appendix does an appendectomy in twelve minutes through a McBurney incision or the unspectacular though more observant man who, having detected the chronic appendicitis, likewise recognized a badly adherent tube, and a retroversion of the uterus associated with a relaxed perineum, and who thus being able to see a few inches beyond his nose, employs an infraumbilical midline incision, removes the tube and appendix, suspends the uterus, and then reconstructs the perineal floor, taking perhaps from an hour to an hour and a half, or even more? The fortunate patient of the latter will have no remarkable tales to recount to her visitors, and her convalescence may even be somewhat prolonged, but she will be in a much better position to regain her normal health than will the woman in whom the lesions were only one-half or one-third corrected.

A patient very rarely goes to the surgeon saying: "Doctor, I have gall stones which I wish you to remove." But what he does say is: "Doctor, I am in bad health and suffer with such and such symptoms, and hope you can cure me." It is, therefore, the duty of the surgeon to seek one and all of the causes of his ill health.

As the immortal John B. Murphy was wont to remark, "A surgeon should first of all have a conscience." We would like to add that he should remember that careful attention to details is the *sine qua non* of all work that is really worth while, no matter what its nature may be; and that in surgery an inordinate desire for a reputation for speed seeks an undeserved credit from an uninformed laity, and unjustly reflects discredit upon the work of conscientious, painstaking surgeons, who undertake a surgical operation for the purpose of removing the cause of a patient's trouble and not with a preconceived and set determination to make cer-

tain mechanical changes, regardless of the operative findings, in order that little time be consumed.

We do not endorse needless waste of time during operations, but consider it most fortunate to be able to do things thoroughly and with dispatch. However, we do decry the increasing and wild desire to speed up regardless of consequences just as we do the ever-present dread of one's mortality rate when the best interests of the patient demand a desperate fight for his life at any cost.

THE BIBLE AND BUBONIC PLAGUE

And the men that died not were smitten with the *emerods*: and the cry of the city went up to Heaven.—I Samuel, v, 12.

Then said they, What shall be the trespass-offering which we shall return to him? They answered five golden *emerods*, and five golden *mice*, according to the number of the lords of the Philistines: for one *plague* was on you all, on your lords. —I Samuel, vi, 4.

It seems to have been common in ancient times for the Deity to afflict His children with destructive maladies vaguely termed plagues. One of these occurred during the time of Samuel and would seem to have been none other than our recent visitor, bubonic or rat plague.

It was especially prevalent and fatal among the Philistines who, in order to appease the wrath of Heaven, offered golden images of "mice" and "emerods" to God. Why should the Philistines have chosen these objects as models for their images? To the writer there is a theory which he considers at least reasonable and which he would like to submit for your consideration.

To begin with, the diet of those times we may easily believe from Scriptural writings consisted largely of meat and bread, which were highly conducive to hemorrhoids. Therefore, piles must have been even more common then than at the present day, which is saying a great deal. The people were not pathologists in any sense of the word and did not know that hemorrhoids were dilated veins.

While the writer is not a student of Hebrew, he would venture the theory that the word which "emerod" translates meant a nodule or lump, which was commonly but not necessarily confined to the ano-rectal region. Furthermore, we have no record of the existence then or since then of any epidemic disease associated with hemorrhoids.

Now the mention of the golden images of the mice is very significant. Those ancients in all likelihood thought mice were young rats; and since gold was a very precious commodity even in those early days, what could have been more natural than that they should choose the supposedly young of the species as their models?

Bubonic plague, we have recently learned, is primarily a rat disease, which mice do not convey, for they harbor a different variety of flea. But rats die in great numbers whenever the disease is prevalent.

Isn't it rational enough to picture bubonic plague among the Philistines; and men and rats dying by the hundreds? Unconsciously the two must have been associated together in the minds of the beholders even though no causal connection were conjectured; and hence the golden images of mice, which were the more economical representations of rats, and the emerods of gold could easily have symbolized the "lumps" or glandular enlargements invariably accompanying bubonic or rat plague.*

*Since writing the above we are informed by a Hebrew scholar, Dr. Harry P. Shugerman, of Birmingham, Ala., that the original word for "emerods" is *apeal*, literally meaning a prolapsus.

SOUTHERN MEDICAL NEWS

ALABAMA

Dr. Harry M. Simpson, Birmingham, has been commissioned into the Medical Reserve Corps and has been ordered to the Government Roentgenogical School at Richmond. At the time of accepting service he was associated with Dr. Seale Harris as his assistant.

The Norwood Hospital (private) was recently opened at Birmingham. Its officers are: Dr. C. N. Carraway, President; Dr. M. E. Moreland, Vice-President; Dr. L. W. Hubbard, Secretary-Treasurer.

Dr. Joseph C. Bloodgood, of Baltimore, Chairman for the Southern states of the National Council of Defense, recently addressed the Jefferson County Medical Association in the interest of the Medical Department of the Army.

Dr. F. E. Harrington, County and City Health Officer, Jefferson County and Birmingham, has resigned. Dr. Harrington was given a leave of absence from the United States Public Health Service to occupy this position. Owing to the urgent need of medical men for the service, he has been recalled by Surgeon-General Blue.

Dr. J. D. Dowling, Birmingham, has been elected City and County Health Officer to fill the vacancy caused by the resignation of Dr. Harrington.

Dr. F. G. Grace, Birmingham, a Major, U. S. Army, has reported his safe arrival "somewhere in France."

Dr. T. H. Frazer, Dean, School of Medicine, University of Alabama, has announced September 27 as the opening date for the 52d session.

Dr. J. N. Baker, Chairman of the State Committee of National Defense, has been speaking to the doctors throughout the State during the past month in the interest of medical enlistment.

Dr. D. W. Walker, of Leighton, and Dr. W. L. Dinsmore, of Decatur, have recently located in Tuscumbia.

Dr. Frank H. Clements, of Athens, Assistant Surgeon, United States Army, is on duty at the aeronautic station at Pensacola.

At the instigation of the County Health Officer, a number of physicians of Jefferson County were recently fined for failure to report contagious diseases promptly and accurately.

The State Board of Medical Examiners has recently reported the names of thirty-two successful applicants for licenses.

Dr. J. T. Miller, Birmingham, Examining Physician of the Board of Exemption, was recently relieved owing to having been painfully injured in an automobile accident.

Dr. L. L. Lumsden, United States Public Health Service, has been investigating the sanitary conditions at Anniston and Montgomery looking to the safeguarding of the health of the soldiers quartered at these places.

Dr. Percy O. Chaudron, Dothan, Captain in an Ambulance Corps now stationed at Allentown, Pa., expects soon to be ordered for service in France.

Among those who have been recently called for active service may be mentioned: Dr. Robert Goldthwaite, Montgomery; Dr. E. M. Daly, Birmingham; Drs. T. M. Barrett and W. G. Page, Dothan; Dr. E. D. McAdory, Cullman; Dr. O. V. Langley, Loachapoka; Dr. F. H. McConnico and Dr. F. W. Wilkerson, of Montgomery.

Deaths

Dr. Chas. R. Palmer, Tuscumbia, aged 58, died July 27.

Dr. L. P. Esslinger, Newmarket, aged 40, died August 6 in a hospital in Nashville.

ARKANSAS

The State Board of the Arkansas Medical Society, at its recent annual election, named the following officers: Dr. Francis T. Isbell, of Horatio, President; Dr. Thos. J. Stout, Brinkley, Secretary; Dr. Edward F. Ellis, Fayetteville, Treasurer.

The Medical Department, University of Arkansas, at Little Rock, was recently given, by Mrs. Welch, the medical library of her husband, the late Dr. W. B. Welch, of Fayette.

Dr. Vernon Robins, of Louisville, Ky., is now County and City Health Officer at Helena. Dr. Robins was for a number of years city chemist and bacteriologist of Louisville.

Dr. Frank Vinsonhaler, of Little Rock, has been appointed Director of the American Red Cross for Arkansas chapters.

Paragould is having an investigation made of her water and milk supplies, endeavoring to determine the source of several cases of typhoid fever.

Surgeons C. C. Pierce, L. L. Lumsden and H. C. Yarbrough, U. S. Public Health Service, recently made a health survey of the country surrounding Little Rock and Argenta.

At Tiller, on July 26, fire destroyed the offices of Drs. J. T. Chears, D. T. Chears and B. T. Terry, entailing a loss of $3,000.00.

Dr. Samuel L. Hutchinson, of Argenta, is now Resident Physician for the American Bauxite Co. at Bauxite.

Married, on July 25, Dr. Gibbs Biscoe, of Pendleton, to Miss Even Goree, of Pine Bluff.

Of the forty-eight members of the Sebastian County Medical Society, twelve have offered their services to the Government.

Dr. G. B. Hesterly, of Prescott, who has been taking a special course at Johns Hopkins, has returned to his practice.

Drs. J. A. Thompson and E. E. Barlow, of Dermott, were recently named as members of the City Board of Health.

Dr. W. A. Shipman recently moved from Montrose to Bartlesville, Okla.

Dr. C. E. Robinson has moved from Little Rock to Clarksville.

The fifth annual conference of the health officers of the State recently held its meeting in Little Rock. The compulsory vaccination order and mosquito control for the elimination of malaria were the two subjects discussed. Dr. W. S.

Leathers, Director of Sanitation for the State of Mississippi, gave an illustrated lecture on the control of malaria in Bolivar County, Mississippi, and Dr. R. E. Tarbett, United States Sanitary Engineer, gave an illustrated lecture showing how malaria had been eliminated from the Panama Canal Zone.

Dr. Kenneth B. Huffman, of Bentonville, has been assigned to active duty by the Medical Department of the Army.

Deaths

Dr. John T. Haden, Crawfordsville, aged 64, died July 2 from cerebral hemorrhage.

Dr. Thomas W. Hurley, of Bentonville, aged 83, a surgeon in the Confederate Army, died July 15.

DISTRICT OF COLUMBIA

Dr. Dozier Gibbs, Assistant Surgeon, U. S. Navy, Washington, was married to Mrs. Lula May Lacy, of Nashville, Tenn., at Portsmouth, Va., July 28.

Dr. Garrett M. Huddleston, Lieutenant, U.S.A., Washington Barracks, was married to Miss Helen MacLain, of Asheville, N. C., at Washington on July 26.

Dr. Henry C. Fischer, Colonel, Medical Corps, U.S.A., has recently made special sanitary inspection of the Southern cantonment camps.

Deaths

Dr. Hubbard L. Gillette, Washington, aged 68, died on May 12 from uremia.

Dr. Dwight G. Smith, Washington, aged 44, died at the Emergency Hospital July 31.

FLORIDA

The new State Board of Health recently appointed held its organization meeting at Tallahassee, electing Dr. Chas. T. Frecker, President; Dr. Wm. H. Cox, of Brooksville, State Health Officer; Dr. Hiram Byrd, of Princeton, Scientific Inspector. Dr. Wm. R. Warren was placed in charge of the station at Key West and Dr. F. L. Tatum, of DeFuniak Springs, at Pensacola, and to have charge of the State health work in West Florida.

Dr. Jos. Y. Porter, Jacksonville, Lieutenant-Colonel, U.S.A. (retired), has been placed on active duty at the office of the Department Surgeon, Charleston, S. C.

Dr. Burdette L. Arms, late Chief Bacteriologist of the Alabama State Board of Health, has been appointed Director of the State Bacteriological Laboratory at Jacksonville to fill the vacancy caused by the resignation of Dr. Edw. G. Birge.

Dr. Harold H. Fox, Tallahassee, has been appointed Bacteriologist in the State Laboratory at Miami to fill the vacancy caused by the resignation of Dr. Iva C. Youmans, who will enter private practice at Jacksonville.

Dr. Claude P. Fryer, of New Orleans, La., has been appointed Bacteriologist in charge of the State Board Laboratory at Tampa to succeed Dr. Hubbard R. Mills, resigned, who has volunteered for service for the Medical Corps, U.S.A.

Dr. Ralph N. Green, of Jacksonville, President of the Florida State Medical Association, has recently been appointed Major and assigned to the command of the sanitary detachment of the Second Florida Infantry, now encamped at St. Petersburg. Dr. Green has accepted this appointment and is on active duty. He saw duty in service with the First Florida Field Hospital on the Mexican border last year.

Dr. W. W. MacDonald, City Health Officer of Jacksonville, is making an aggressive campaign to rid the city of malaria-breeding mosquitoes.

The Volusia County Medical Society will take care of the practice of any of their members who volunteer for Army service, paying one-third of the customary fees collected each month to the families of the absent physicians.

Sixteen of Tampa's physicians have answered the call for service and have been assigned to active duty. Among them the following may be mentioned: Dr. Earle H. McRae, Dr. John D. McRae, Dr. R. B. McLaws, Dr. L. J. Efird, Dr. Andrew R. Bond, Dr. Wm. C. Douglass, Dr. Lucian B. Mitchell, Dr. Hubbard R. Mills, Dr. B. H. Palmer, Dr. Fay A. Cameron, Dr. John Halliday, Dr. C. A. Andrews, Dr. Urban S. Bird, Dr. J. Brown Wallace, and Dr. Jos. W. Taylor.

Deaths

Dr. John W. Clerke, of Green Cove Springs, aged 72, died August 13.

Dr. A. J. P. Julian, of Lake City, aged 48, died August 14.

GEORGIA

Dr. T. F. Abercrombie, Commissioner of Health, Brunswick, has been elected Secretary of the State Board of Health to succeed Dr. H. F. Harris, who recently resigned.

Dr. Henry F. Terrell, of LaGrange, has been appointed by Governor Dorsey to the Board of Medical Examiners to succeed the late Dr. F. M. Ridley, Sr.

Dr. John C. McAfee, of Macon, has been elected President of the Idle Hour Country Club.

The three new fireproof buildings, costing nearly $250,000, being erected on the campus of Atlanta Medical College, Medical Department of Emory University, will be completed and ready for use with the opening of the 1917-18 session.

At Dalton, Drs. John C. Rollins and Harlan L. Edwin have purchased the Herndon property and will establish a hospital.

The City Council of Carrollton will accept the $10,000 towards the erection of a sanatorium donated by the late C. B. Simonson. They plan to spend about $30,000 for the building and equipment.

The Bainbridge Hospital, Bainbridge, a modern steel and concrete structure, costing $70,000 for the building and equipment, has been completed and opened to the public. Dr. A. E. B. Alford is Surgeon-in-Chief.

At the meeting of the Chattahoochee Valley Medical Society, held at Warm Springs early in July, the following officers for the next year were elected: Dr. H. S. Monroe, Columbus, Ga., President; Dr. W. L. Champion, Atlanta, Ga., First Vice President; Dr. T. H. Haralson, Cusseta, Ala., Second Vice President; Dr. E. C. Thrash, Atlanta, Ga., to the Board of Council;

(Continued on page 30)

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(Continued from page 776)

Dr. J. H. McDuffie, of Columbus, was re-elected President of the Council; and Dr. Hansell Crenshaw, of Atlanta, Chairman of the Program Committee. The efficient Secretary, Dr. W. J. Love, Opelika, Ala., to whom great credit is due for the success of this organization, was unanimously re-elected Secretary.

Dr. E. C. Davis, Medical Director of the Emory University Base Hospital of Atlanta, has announced that the unit is complete and ready to be called for active service.

Dr. Joseph C. Bloodgood, Baltimore, Md., Major, M.R.C., U.S.A., in addressing the profession of Atlanta on the 22d, urged every doctor physically fit to offer his services to the Army.

The Eighth District Medical Association held its annual meeting at Monroe on August 15 as the guest of the Walton County Medical Society.

The two ambulance companies organized in Atlanta by Dr. Walpole Brewer and Dr. Leo Daley have been called into service and will be stationed at Fort McPherson for training.

Dr. L. Sage Hardin, Chairman of the State Committee, Medical Section, Council of National Defense, has recently called the attention of Georgia physicians to the fact that Georgia has not supplied her quota of physicians for Government service and has issued a stirring appeal for more Georgia doctors to volunteer.

Dr. Frank D. Sweet, Atlanta, who has been associated with the Grady Hospital house staff, has moved to Long Beach, Cal.

Dr. Logan Thomas, of Dover, who is serving on the local medical examining exemption board, is an "old-timer," having served during the Spanish-American War in both the medical and artillery branches.

Many physicians of Waycross have volunteered for service and have been ordered to active duty. Among them are Dr. R. C. Walker, Dr. J. J. Beaton, Dr. J. R. Scully, Dr. Paul McGee, Dr. F. C. Nesbitt, and Drs. Fleming, Mitchell, Carswell and Mason.

Dr. W. A. Upchurch and Dr. James C. Calloway, both of Atlanta, have volunteered for medical service and have been ordered for active duty.

Deaths

Dr. Chas. Hook Harris, Cedartown, aged 82, died August 18th. He was a surgeon in the Confederate Army.

Dr. John Henry Coile, formerly of Thomasville, died August 22 at Atlantic City. His remains were brought to Thomasville for burial.

Dr. A. E. Chance, Garfield, died August 13.

KENTUCKY

Fire destroyed the Illinois Central Hospital at Paducah early in July. It was a large frame structure occupying nearly a city block. It will be replaced as soon as possible by a modern fireproof building.

Funds to the extent of $55,000 have been raised to build the Fayette County Sanatorium for Tuberculosis at Lexington.

Dr. Wm. E. Gardner, President Louisville Neuropathic Sanatorium, was operated upon early in August for appendicitis while on a vacation at Lake Chautauqua. He is rapidly recovering.

Dr. Ap Morgan Vance, Jr., of Louisville, who has been serving "somewhere in France," has been wounded while in active service and is in a hospital at London.

The State Board of Health recently announced the names of sixty-seven medical students who have successfully passed the examination to practice medicine.

Dr. Lewis S. McMurtry, assisted by Dr. Henry Enos Tuley, Dean, Medical Department, University of Louisville, has organized the Louisville City Hospital Red Cross Unit D, and is ready for active service. Dr. John W. Price is organizing another hospital unit of Louisville physicians. Dr. Owsley Grant has organized Field Hospital No. 2, which will be a unit of the Kentucky brigade.

At Lexington, Dr. David Barrow, of Lexington, is organizing Base Hospital Unit No. 40.

The Mercer County Medical Society has passed resolutions condemning and refusing membership to any physician who locates in Mercer County during the war, pledging themselves to take care of the practice of any of their members who enter the service and turning the practice back to them when they return from the war.

A number of Kentucky physicians have recently gone into active service in the Medical Corps of the Army. Among them are Drs. Chas. L. Venable, Franklin; Chas. B. Kobert, Lebanon; Robt. L. McDaniel, Hopkinsville; Henry Alexander, Fulton; Horace Rivers and Phil Stewart, Paducah; J. B. Robards, Harrodsburg; Stanley Strove, Hopkinsville; Smithville Keefer, Ashland; Sam R. Guthrie, Franklin; E. W. Jackson, Paducah; J. Tom Price, Harrodsburg; Chas. Robertson, Hopkinsville; T. R. Griffin, Danville; G. H. Beckett, Sunrise; Walter B. Gossett, Lee Ernsberger, F. M. Walker, Fred L. Koontz, R. T. Pritle, Fred Grunwall, W. L. Coolidge, John Richardson, of Louisville; Albert Stewart, Frankfort; William Brown Doherty, Louisville.

Dr. W. Ed Grant, City Health Officer of Louisville, has put on an aggressive campaign cleaning up and making sanitary the eating places of the city.

Dr. Arthur T. McCormack, Major, M.R.C., U.S.A., Drs. Ernest Rau and Charles B. Kobert, Captains, M.R.C., U.S.A., are making the tour of Kentucky for the purpose of examining applicants for appointment in the Medical Reserve Corps.

Deaths

Dr. Burdette Ramsey, Paint Lick, aged 92, died July 13.

Dr. Ernest M. Sellards, Ashland, aged 45, died August 4 from meningitis following an attack of rheumatism.

Dr. Harry V. Lucas, Louisville, aged 66, died July 14 from organic heart disease.

Dr. R. M. Parks, Louisville, died August 15 from cancer.

Dr. Samuel Meyer, Louisville, aged 48, died August 17 from the effects of a stroke of paralysis last November.

LOUISIANA

Dr. Thomas Martin, New Orleans, has resigned from the staff of the Charity Hospital to enter the Government service.

(Continued on page 32)

Chronic Constipation of Elderly Persons

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(Continued from page 30)

Dr. John G. Martin, Lake Charles, President of the State Board of Medical Examiners, has resigned to enter the Medical Corps, U. S. A.

Dr. Benjamin F. Gallant, New Orleans, will make a survey of the Charity Hospital, Shreveport, for the Louisiana State Board of Health.

The State Board of Health, at its July meeting, adopted resolutions praising the work of Dr. Oscar Dowling, President of the Board, in regard to the health condition of the military camps.

At New Orleans an aggressive campaign has been put on by the city authorities through the instigation of the American Hay Fever Prevention Association for the eradication of hay fever.

At the last meeting of the Louisiana State Board of Medical Examiners thirty-four applicants passed and were granted certificates. The next meeting of the Board is set for December 6.

Dr. Thomas E. Wright, Monroe, was recently appointed a member of the State Board of Medical Examiners.

Early in July the State Committee on Medical Preparedness, together with the State Committee of Red Cross, held a meeting and reorganized the new committee to be known as the State Committee on National Defense, Medical Section. Dr. Isadore Dyer, New Orleans, was made Chairman, and Dr. L. R. DeBuys, Secretary-Treasurer. The Chairman was empowered to appoint an executive committee of five members.

Marriages

Dr. Addley H. Gladden, Jr., Lt. M. O. R. C., of Monroe, was married to Miss LeReine Hill, of New Orleans, the latter part of July. Dr. Sidney D. Porter, of New Orleans, was married to Miss Nellie Spyker, of Baton Rouge, the latter part of June. Dr. E. B. Middleton, of Heflin, was married to Miss Ruth Brown, of Homer, the latter part of June.

Deaths

Dr. Alonzo Givens, Mandeville, aged 82, died July 22. He served in the Confederate Army.

Dr. F. G. Marrero, Covington, aged 62, died July 113, from cerebral hemorrhage, at the Presbyterian Hospital at New Orleans.

MARYLAND

The Association of Medical Societies of the Eastern Shore of Maryland, Eastern Shore of Virginia and Delaware held its first annual meeting in Ocean City July 26. Dr. J. McFadden Dick, of Saulsbury, was elected President, and Dr. E. E. Wolff, Cambridge, Secretary-Treasurer.

A conference has been called by the Maryland Tuberculosis Association to be held in Baltimore October 18 and 19. Dr. Louis Hamman, Chairman, and Dr. H. Wirt Steele, Secretary of the local committee, are arranging for the conference.

Fort McHenry, which was loaned to Baltimore to be used as a park has been reclaimed by the national government to be used as a base hospital. The old buildings will immediately be renovated and made available for hospital purposes.

Several counties has reported cases of infantile paralysis.

Dr. Wm. R. Dunton, Jr., of Towson, told the Rotary Club, at a recent luncheon, how our maimed soldiers can be made useful citizens when they return from France.

Dr. Thomas W. Salmon, of New York, Director of the National Committee for Mental Hygiene, gave a lecture on War Neuroses at the Henry Phipps Psychiatric Clinic. Dr. Salmon's lecture was illustrated by pictures taken by him while studying conditions at the various European fronts.

Dr. Thomas R. Chambers, Captain, Medical Corps, U. S. A., and Dr. Edward D. Ellis, Lt. Medical Corps, U. S. A., both of Baltimore, have been appointed to the staff of the American Evacuation Hospital to be established in France.

Dr. C. Frank Jones was recently appointed Assistant Health Commissioner of Baltimore.

Dr. Alexander D. McConachie, Baltimore, who was recently operated upon for appendicitis, was reported to be rapidly recovering.

Dr. Edward B. Mathews has been appointed a member of the Maryland Council of Defense to succeed Dr. Wm. B. Clark, deceased.

Dr. C. A. Penrose, Baltimore, gave a talk to a recent meeting of the Rotary Club on the work of the Food Economy Commission, of which he is Chairman. His talk was especially interesting because of observations made in England while there in the interest of his work.

The University of Maryland Base Hospital Unit is recruited to full war strength and ready to be assigned to active duty.

Dr. Joseph W. Roberts, of Saulsbury, has been named Medical Superintendent of the Maryland General Hospital.

Dr. Ernest W. Watson, Baltimore, on the staff of the Brady Urological Institute, has resigned to open offices in Buffalo.

Dr. H. C. Algire, Dr. C. R. Parker, Dr. W. G. Coppage, Dr. Jacob Fisher and Dr. L. R. Wilson were recently appointed surgeons to the Baltimore Park Board.

Maryland has contributed more physicians to the United States Army than any other state except Arizona. Out of a total of 2,292 pphysicians she has given 216, or 9.4 %.

Dr. John T. Finney, of Baltimore, Major, Medical Corps, U. S. A., in a letter to his son, just ready for college, has given some advice that is applicable to all young men of school and college age. He says: "This army life is not a bed of roses. I would advise you to go on with your studies and not go into the war until you have to. I would advise any young fellow the same thing. So don't worry about getting into it, but devote yourself to your study and to preparing yourself for your life work. You will be nowhere without an education later. This is a war of science, and the country needs educated brains."

Dr. F. H. Baetjer, of Baltimore, is the Instructor in the Johns Hopkins School of Military Roentgenology established by the Government for special training of some of its medical officers.

Dr. Chas. Bagley, Jr., Baltimore, has accepted a position of advisor on brain surgery to the Hospital Committee of the Council on National Defense, with the rank of Captain of the M. O. R. C.

MISSISSIPPI

Dr. Edgar Sydenstricker, U. S. Public Health

(Continued on page 34)

Digestibility

There are many kinds of delicious breadstuffs — dainty muffins, hot gems, fluffy biscuits — craved by the convalescent in place of cold bread or toast. To deny the patient these is often an erroneous, a mistaken, policy. These delicacies, properly made, are almost always more tempting to the palate and more gratefully received than cold food. This fact itself is conducive to digestion. When made with

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such breadstuffs are digestible; they are light and delicate; they are healthful and nutritious. That is because Royal Baking Powder is made from cream of tartar derived from grapes and adds none but healthful qualities to the food.

No Alum No Phosphate

(Continued from page 32)

Service, was sent to Bolivar and neighboring counties to study the food condition in connection to the incidence of pellagra.

Dr. W. S. Leathers, Jackson, Secretary of the State Board of Health, has been assisting in a malaria survey at Helena, Ark.

Dr. J. A. Watkins and Dr. J. A. LePrince, U. S. Public Health Service, have been in Hattiesburg making a survey of sanitary conditions of all civilian property for five miles in all directions from Camp Shelby.

Dr. W. W. Crawford, Major M. R. C., U. S. A., made a talk at a recent meeting of the Forest County Medical Association, in which he pointed out the profession would be benefited by the physicians who will be stationed at Camp Shelby.

Out of ten physicians in Columbus seven have volunteered for Army service. They are Drs. W. R. McKinley, W. E. Richards, T. T. Box, W. E. Lehnberg, J. N. Cox, J. W. Lipscomb and J. E. Davis. Dr. Davis was on the British ship which was torpedoed early in the war, being placed on the Yarrowdale and taken to Germany, where he was held for some time.

Among others who have volunteered may be mentioned: Dr. F. L. Ricks and Dr. B. J. Marshall, Starkeville; Dr. T. W. Reagan, Union; Dr. H. S. Sproles, Vicksburg.

Twelve of Meridian's physicians have answered the nation's call for service. With the ordering of Dr. C. F. Douglas, Dr. T. J. Smith and Dr. R. M. Leigh for active service, there are only left two of the twelve who have volunteered.

Deaths

Dr. W. H. Rowan, Jackson, aged 42, died August 7. Dr. Rowan was Superintendent of the Mississippi Tuberculosis Sanatorium, Sanitary Inspector of Mississippi 1912-14, later director of sanitation work in Guatemala for the International Sanitary Commission.

Dr. B. P. Evans, Quitman, aged 40, died August 19 from aortic insuffciency.

MISSOURI

The Employees Hospital Association of the Missouri Pacific Railroad has purchased a site for a new hospital in St. Louis. Dr. Paul E. Vasterling, Chief Surgeon of the railroad, is Chairman of the Association's Board of Directors and will supervise the planning and construction of the new hospital, estimated to cost approximately $500,000.

Dr. Wm. H. Coon, for the past ten years Public Health Commissioner of Massachusetts, has been made Health Director of Kansas City, succeeding Dr. H. E. Pearse, resigned.

Dr. and Mrs. Chas. Wood Fassett, of Kansas City, who spent several months in the East, have returned home.

Dr. Jabez N. Jackson, of Kansas City, was recently appointed a member of the Medical Advisory Board of the Army.

Dr. J. F. Binnie, Kansas City, Major Medical Corps, who is in charge of the Base Hospital Unit No. 28, has announced the Unit recruited full and awaiting a call for active service.

Dr. George Dock, St. Louis, Professor of Medicine, Washington University, has been honored with the French war cross for his service in moving wounded soldiers under fire while with the American Field Ambulance Service.

Dr. E. L. Trowbridge has been appointed Superintendent of the Tuberculosis Hospital of the Kansas City Health Department to succeed Dr. Samuel B. Hirschberg, resigned.

Dr. W. L. Whittington, St. Joseph, has resigned from his position with the State Hospital for the Insane.

Deaths

Dr. Josiah Gates, La Plata, aged 85, died at the St. Joseph Hospital on July 24.

Dr. Wm. A. Dumbauld, Carterville, aged 70, died July 9.

Dr. Leonidas W. Tandy, Creighton, aged 67, died June 5.

Dr. M. B. Austin, Brunswick, aged 47, died at Moberly on July 22.

NORTH CAROLINA

Regular weekly meetings for the special study of war subjects are being held by the Buncombe Medical Society, Asheville.

Dr. Chas. O'H. Laughinghouse, Greenville, and Dr. John W. Long, of Greensboro, have been designated by the Governor as the medical members of the district exemption boards.

Dr. John S. Mitchener, of Edentown, is now the whole-time Health Officer for Lenoir County.

Ampules of one per cent. silver nitrate solution are now being distributed by the State Board of Health to all physicians and midwives. In order to prevent blindness the state legislature recently enacted a statute requiring the above solution to be used in every case of child birth.

The new statute providing strict regulations for the reporting of whooping cough, measles, scarlet fever, typhoid fever, bubonic plague, smallpox, typhus fever, yellow fever, diphtheria, infantile paralysis, Asiatic cholera, cerebralspinal meningitis, became effective August 1, and the State Board of Health is putting it into active operation.

Dr. Thos. J. Summey, of Brevard, was tendered a banquet by citizens of Transylvania County just before he left for service in the Army.

Dr. N. B. Cannady, of Laurenburg, has been accepted for service in the Medical Department of the Army.

Death

Dr. R. M. Reid, Gastonia, aged 52, died August 14 from an attack of angina pectoris.

OKLAHOMA

Dr. James J. Williams, of Clinton, is the new President of the State Medical Board.

The city authorities of Oklahoma City and University of Oklahoma Medical School have perfected an arrangement whereby the City Emergency Hospital will pass to the control of the school. A $200,000 hospital will also be erected by the state, to be controlled by the school.

The State Board of Medical Examiners has revoked the license of Dr. Thos. E. Sheppard, of Tulsa, who was charged with performing a criminal operation upon a young woman which resulted

(Continued on page 36)

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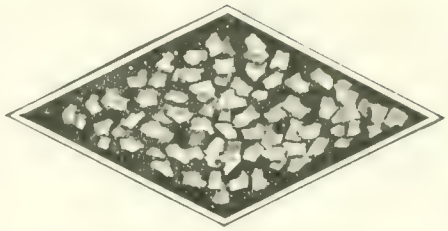

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Both sold in packages only.

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(Continued from page 34)

in her death. He announces that he will not contest the decison of the State Board, but will retire to private life.

Dr. H. H. Cloudman, Oklahoma City, was recently re-elected school physician, the position he has held for several years.

Dr. S. P. Strother has moved from Alters to Holdenville, where he will have charge of the Holdenville Hospital.

Dr. Fred Y. Cronk has moved from Guthrie to Tulsa. He will be associated with Dr. Ralph E. Smith.

The Oklahoma Baptist Hospital, Muskogee, is preparing plans for a $30,000 addition.

The State Board of Medical Examiners have elected the following officers: President, Dr. J. J. Williams, Weatherford; Vice-President, Dr. M. Gray, Mountain View; Secretary, Dr. R. V. Smith, Tulsa; Treasurer, Dr. O. R. Gregg, Freedom.

At a recent meeting of the Rogers County Medical Society a resolution was adopted assessing each member $5.00 per month to create a fund with which to pay $50.00 per month to each member that went to war.

Dr. S. M. Hunter has been appointed City Physician of Oklahoma City to succeed his son, Dr. George Hunter, who resigned to serve his country in the Medical Corps of the Army.

Dr. Emma S. Keith has been employed by the Muskogee Board of Education to make a medical inspection of the students of the city schools.

Among those who have volunteered for service in the Medical Corps of the Army may be mentioned Dr. J. Lee Riley, Henrietta; Dr. Benjamin Brown, Muskogee; Dr. E. E. Rice, Dr. J. A. Walker, Dr. H. A. Wagner and Dr. T. D. Rowland, Shawnee; Dr. R. L. Kurtz, Nowata; Dr. E. A. Campbell, Heavener; S. D. Bevill, Poteau; Dr. B. T. Bitting, Enid; Dr. W. J. Omer, Thomas; C. M. King, Okmulgee; T. F. Renfroe, Billings; Dr. J. L. Patterson, Mutual; Dr. Fred Patterson, Fargo; Dr. F. H. Racer, Woodward; Dr. P. P. Nesbitt, Muskogee; Dr. J. W. Nieweg, Duncan.

Deaths

Dr. S. B. Growdon, Cherokee, aged 56, died August 26 after an illness of several months.

Dr. R. H. Koons, El Reno, aged 41, died from uremia July 31.

Dr. V. B. Reynolds, Bristow, aged 60, Health Officer of Creek county, died April 22 from heart disease.

SOUTH CAROLINA

Dr. James A. Hayne, Secretary State Board of Health, accompanied by a surgeon of the United States Public Health Service, recently inspected the two Army camps, Camp Sevier and Camp Wadsworth.

Dr. Jno. B. Setzler, of Newberry, and Dr. W. J. Burdell, Lugoff, have been accepted and ordered to active duty in the Medical Corps of the Army.

Death

Dr. Stephen T. Lea, of Holly Hill, aged 61, died suddenly from acute gastritis, August 2.

TEXAS

Dr. John Preston, Superintendent of the State Insane Asylum, is organizing a Texas neuro-psychiatric hospital unit, under the direction of the American Medico-Psychological Association.

Wharton County is to have made a complete health survey under the direction of Dr. P. W. Covington, International Health Board.

Through the efforts of Dr. A. L. Lincecum sufficient land has been secured on which to build and maintain a fumigation station at the international bridge.

Under the direction of H. W. van Hovenberg, sanitary expert for the Cotton Belt Railroad, an anti-malarial campaign is in progress in Texarkana.

The contract for the new quarantine station at Sebaine provided for by the last Legislature was awarded on August 20.

The first of a new series of monthly clinics by the Dallas County Medical Society was held at the Baptist Sanitarium August 16.

The Hewson Sanitarium, of Orange, has just been completed and opened to the public.

Orange will erect a community hospital estimated to cost $100,000.

The King's Daughters Hospital, Temple, has awarded a contract for a fire-proof addition to cost $40,000.

A new hospital at Waco, to be known as the Central Texas Baptist Sanitarium and to cost $125,000, is now in the course of construction.

Dr. W. B. Collins, State Health Officer, has been appointed a member of the medical section, National Council of Defense.

The Providence Sanitarium, of Waco, operated by the Sisters of Charity, is to have a $60,000 annex.

Dr. M. E. Lott, Dallas, has been named Medical Director of the Baylor Medical College Base Hospital Unit.

Dr. J. H. Dorman, of Dallas, is now serving in the Norfolk War Hospital at Norwich, England.

Plans are being perfected in Dallas for the organization of a mobile hospital. The city will have to raise $25,000 to secure this hospital. After it has been established it will be maintained by the government.

Among those who have volunteered for service in the Medical Department of the Army may be mentioned Drs. H. L. McNeil, M. D. Levy, J. S. Jones, T. L. Kennedy, Galveston; Dr. C. H. Brownlee, Burnett; Dr. John V. Blake, Floresville; Dr. Emmett Bruton, Dallas; Dr. H. J. Davis, Austin; Dr. A. G. Heard and Dr. Boyd Reading, Galveston;; Dr. R. M. Parther, Dr. N. H. Bowman and Dr. J. H. Landry, Beeville; Dr. T. C. Brooks, Base City; Dr. Everett Jones, Wichita Falls; Dr. Paul Shepard, Terrell; Drs. Houston Neeley, A. J. Turner and C. H. Reagon, Beeville; A. L. Mondrick, Bryan; G. L. Rea, Momford; J. H. Walker, Alvard; D. M. Spear, Celina; J. H. Graves, Waco; E. A. Frachet and L. B. Duncan, Frisco; Cranz Nicholl, Maxwell; A. T. Clark, Frentress; Levy S. Johnson, Richmond; J. M. Burks, Dale.

Deaths

Dr. David M. Taylor, Garrison, aged 40, died August 2, following an operation for appendicitis.

Dr. E. E. Best, Cameron, aged 39, died June 18 from tuberculosis.

(Continued on page 38)

Digestive Disturbances

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(Continued from page 36)

Dr. H. C. Moore, Houston, aged 42, died August 7, following an opeartion for appendicitis.

Dr. J. E. Lay, Sweet Home, aged 38, died April 25 from heart disease.

Dr. R. F. Worth, San Benito, aged 553, died July 23.

Dr. Chas. C. Castellaw, Forth Worth, aged 35, died July 14.

Dr. R. C. Black, Gainesville, aged 80, died recently from heart disease.

TENNESSEE

Riverside Hospital, Knoxville, organized by Drs. B. D. Hollaway, J. H. Kincaid, C. H. Davis, R. S. Miller and Herbert Acuff, was opened September 1.

Dr. G. B. Tucker, Nashville, is the new Superintendent of the Davidson County Tuberculosis Hospital, succeeding Dr. G. F. Aycock, who has volunteered for Army medical service.

Dr. W. D. Haggard, Nashville, Major M. R. C., was appointed surgical advisor, office of the Surgeon General, Washington, for one month. He succeeded Dr. Stuart McGuire, of Richmond.

The Chamberlain Memorial Hospital, to cost $20,000, is being built at Rockwood.

Dr. W. M. McCabe, for eight years Superintendent of the Nashville Hospital, has resigned in order that he may accompany the Vanderbilt Hospital Unit soon to be ordered for service in France. He is succeeded by Dr. W. F. Fessey.

Dr. Benjamin L. Simmons, Granville, has been reappointed as a member of the State Board of Medical Examiners.

Dr. Edward E. Reisman has been named chief of staff of the Baroness Erlanger Hospital at Chattanooga to succeed Dr. J. M. Selden, resigned.

The East Tennessee Medical Association, which recently met in Dayton, elected the following officers: Dr. J. M. Clack, Rockwood, President; Dr. W. P. McDonald, Spring City, and Dr. E. T. West, Johnson City, Vice-Presidents; Dr. Wm. N. Lynn, Knoxville, Secretary-Treasurer. The semi-annual autumn meeting will be held at Johnson City, the annual meeting at Athens.

The West Tennessee Medical and Surgical Association, at its annual meeting held at Martin, elteced the following officers: Dr. W. F. Clary, Memphis, President; Dr. T. D. Wingo, Martin, and Dr. C. H. Johnston, Lexington, Vice-Presidents; Dr. I. A. McSwain, Paris, Secretary-Treasurer. The next meeting will be held at Jackson.

At the request of the Budget Committee of the Shelby county courts, a special committee from the Memphis and Shelby County Medical Society was appointed to examine conditions at the Emergency Hospital. This committee has recommended that the county build a pellagra hospital on the ground of the Home for the Aged and Infirm; that the pellagra hospital now in use be remodeled and used for an isolation hospital; that a physician well qualified for the work be secured as superintendent for the Emergency Hospital. This committee condemned the arrangements for the present Emergency Hospital. The committee was composed of Drs. W. B. Burns, J. C. Ayers, A. B. DeLoach and Newman Taylor.

The Memphis General Hospital, Hospital Unit P, under the direction of Dr. Battle Malone, Major, M. O. R. C., has been recruited to full strength and ordered into active service.

Drs. J. A. Witherspoon, Nashville; F. M. McRee, Union City, and C. P. Fox, Greenville, are the medical members of district exemption boards of Tennessee.

Dr. Louis Levy, Memphis, Medical Officers Reserve Corps, has been in Philadelphia taking special instruction preparatory to going into active duty with examining units for the aviation section, Signal Officers Reserve Corps.

Dr. Jos. C. Bloodgood, Baltimore, addressed a large audience in Nashville on Friday, August 24, in the interest of medical preparedness.

Dr. H. H. Shoulders, Nashville, Registrar of Vital Statistics, State Board of Health, has been appointed a member of a committee of fifty of the South with the National Tuberculosis Conference to be held in Chattanooga, November 9 and 10.

One-fourth of the members of the Memphis and Shelby County Medical Societies have volunteered for service in the Medical Department of the Army.

Among those who have been assigned to active medical service in the Army may be mentioned Dr. Lee A. Stone, Memphis; Dr. R. R. Sellers, Erwin; Dr. G. H. Reams, Winchester; Dr. S. H. Long, Chattanooga; Dr. E. D. Watkins, Memphis; Dr. S. S. Moody, Shelbyville; Dr. M. G. Spingarn, Memphis; Dr. M. L. Shelby, Woodlawn; Dr. T. V. Woodring, Nashville; Dr. P. E. McCabe, Knoxville; Dr. J. M. Trout, Knoxville; Dr. Jas. W. McClaran, Jackson; Dr. W. S. Wiley, Bristol; Dr. T. H. Ingram and Dr. A. R. Porter, Memphis; Dr. N. I. Ardan, Bristol; Dr. G. R. McSwain and Dr. Chas. Henley, Paris.

Drs. L. B. Marshall, Wm. E. Bryan, H. W. Harris and J. B. Naive, all from Tennessee, have been appointed assistant surgeons in the Navy.

Deaths

Dr. T. P. Davis, Alexandria, aged 59, died July 18.

Dr. R. H. Carter, Lynnville, aged 70, died July 28 after an illness of several months.

Dr. T. E. Sawyer, Martin, died June 7.

VIRGINIA

Dr. Everett S. Barr, of Amelia, was married to Miss Alpha Rasor, of Biltmore, N. C., on August 6. They will be at home after September 10, Otterburn Springs Sanatorium, Amelia.

Virginia on August 8 was admitted to the registration area of the United States, the first Southern state to be thus recognized by the Census Bureau.

The Richmond Anti-Tuberculosis Association has opened twelve stations in the city for free tuberculosis examinations.

At the last annual meeting of the Southwestern Virginia Medical Society, held at Pulaski, the following officers were elected: Dr. Wilson R. Cushing, Dublin, President; Dr. Zed B. Sherrill, Marion, and Dr. John W. Preston, Roanoke, Vice-Presidents; Dr. A. B. Greiner, Rural Retreat, Secretary-Treasurer.

A nurses' home has been purchased by the Riverside Hospital, Newport News.

(Continued on page 40)

Welch's

Grape Juice

IT is interesting for physicians to know that Welch's is pressed from Concord grapes, pasteurized and hermetically sealed in glass bottles, all within an hour. Nothing is changed—nothing added or taken away. The purity of Welch's is *guarded and guaranteed.* The quality is obtained by using premium-price Concords and superior methods.

An interesting booklet, "The Food Value of the Grape," will be mailed on request. A full pint bottle will be sent by express, prepaid, for 25 cents.

The Welch Grape Juice Company, Westfield, N.Y.

Patronize our advertisers—mention the Journal when you write them.

(Continued from page 38)

The Medical College of Virginia Memorial Hospital, Richmond, will proceed immediately with the erection of a three-story hospital building as a part of the new hospital group. This building will cost $40,000 and will be for contagious diseases. It is the donation of Major James H. Dooley.

The State Board of Health has announced that there are at least thirty-seven cities in Virginia without physicians to care for the sick, due to the large number that have answered the call for service in the Army.

Dr. John J. Lloyd, of Catawba, has resigned as Superintendent of the State Tuberculosis Sanatorium to accept the position as Superintendent of the Iola Sanatorium, Rochester, N. Y.

Dr. Chas. R. Anderson, Gore, has been appointed a member of the State Board of Health.

Dr. C. A. Folkes, Roanoke, was married on August 18 to Miss Alma Norment, of Highland Park.

Dr. John W. Martin, Richmond, was married to Miss Lillian A. Heisler, of Richmond, on August 18. They will make their home at Clifton Forge.

Dr. Samuel D. Nickels, Big Stone Gap, was married to Miss Louise Parsons, of Petersburg, on July 28.

Dr. B. L. Taliaferro has succeeded Dr. Lloyd as Superintendent of the State Tuberculosis Sanatorium at Catawba.

Dr. G. Paul LaRoque has been named Medical Director of Virginia Hospital, City Home and Pine Camp. The three hospitals are supported by the city of Richmond.

Dr. Claude MacDonald has been named medical assistant to the Norfolk Department of Health.

Dr. John F. Ragland, Centralia, was nominated at a recent election to represent Chesterfield County in the general assembly.

Dr. Stuart McGuire, Richmond, was appointed surgical adviser, office of the Surgeon-General, for one month. He succeeded Dr. W. J. Mayo.

Dr. Harry Wallace, of Greenville, has accepted a position as whole-time County Health Officer of Augusta County.

The Richmond Chapter, American Red Cross, has given $40,000 to the Thousand Bed Hospital Unit of the Medical College of Virginia, being organized by Dr. Stuart McGuire, President of the college and Major, Medical Officers Reserve Corps.

Dr. Thomas V. Williamson, Norfolk, is in command of Ambulance Company No. 1 at Camp Funston.

Among those from Virginia who have answered the call for service in the Medical Corps of the army may be mentioned Dr. B. B. Dutton, Winchester; Dr. A. T. Trinkle and Dr. J. E. Farrish, Charlottesville; Dr. Wm. E. Knewstep and Dr. Paul J. Parker, Newport News; Dr. R. A. Davis, Newport News; Dr. J. C. Dunford, Norfolk; Dr. Chas. A. Young, Gore; Dr. O. T. Amory, Newport News.

Dr. William H. Goodwin, Director University of Virginia Base Hospital Unit, has announced that the staff has been recruited to full strength. All are graduates of the Medical Department of the University. This Unit was recently increased from five hundred to one thousand beds.

Deaths

Dr. Livius Lankford, Norfolk, aged 61, died suddenly from myocarditis on July 18.

Dr. John H. Womack, Catham, aged 48, died May 5 from nephritis in the Danville (Va.) Hospital.

Dr. John S. Pendleton, Richmond, aged 79, died August 14. He served as a surgeon in the Confederate Army throughout the war.

Dr. Jesse B. Webb, Lodi, aged 39, died suddenly July 31 as a result of sunstroke.

WEST VIRGINIA

Dr. M. D. Williams has been appointed Health Commissioner of Wheeling to succeed Dr. W. C. Etzler, resigned.

The new sanatorium of the Ohio County Anti-Tuberculosis Society was opened on August 6. It will be able to care for about thirty patients.

Dr. M. I. Casey, Weston, has recently been appointed to the staff of the Weston State Hospital.

Dr. B. L. Hume, Huntington, has been appointed Assistant Superintendent of the State Hospital at that point.

The Kanawha Medical Society guarantees that any physician a member of their Society who volunteers for service in the Medical Department of the Army shall receive not less than $3,000 a year salary. The difference between what he receives from the service will be made up by the Society.

Among the West Virginia physicians who have volunteered and been accepted for service may be mentioned Drs. Henry D. Hatfield, former Governor of West Virginia; J. Ross Hunter, R. J. Wilkerson, R. M. Bobbitt, C. M. Buckner, W. H. van Pelp, J. O. Hicks, Huntington; W. H. McClain, R. M. Peddicord, C. E. Park, Parkersburg; H. C. Sarver, Charleston; R. H. Powell, Elkins.

Death

Dr. R. J. Wharton, Ceredo, died August 15.

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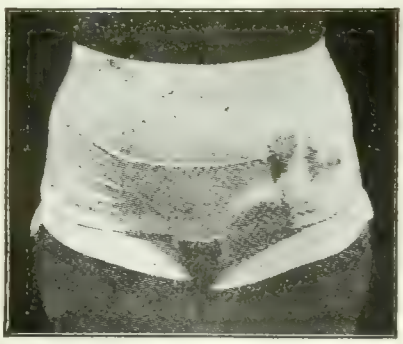

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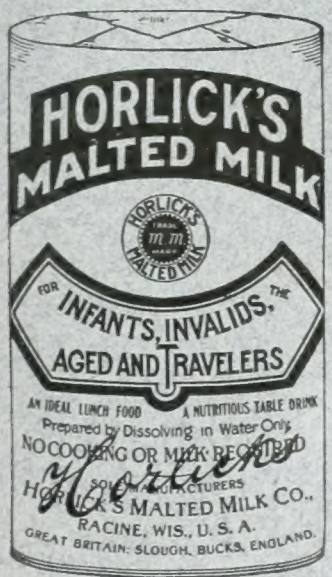
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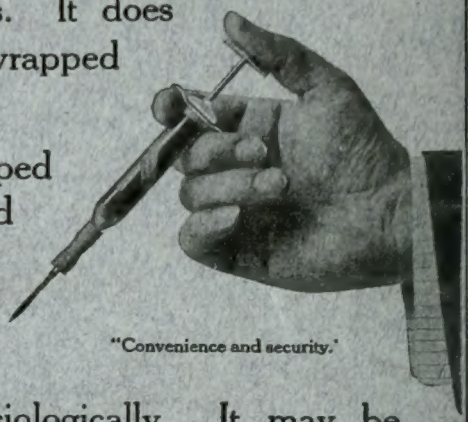

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